UHF FM TRANSCEIVER

TK-3107

KENWOOD

SERVICE MANUAL

M2 version

B51-8572-00(S) 141



TK-3107 (16 channels)

CONTENTS

GENERAL/REALIGNMENT

INTRODUCTION

SCOPE OF THIS MANUAL

This manual is intended for use by experienced technicians familiar with similar types of commercial grade communications equipment. It contains all required service information for the equipment and is current as of the publication data. Changes which may occur after publication are covered by either Service Bulletins or Manual Revisions. These are issued as required.

ORDERING REPLACEMENT PARTS

When ordering replacement parts or equipment information, the full part identification number should be included. This applies to all parts : components, kits, or chassis. If the part number is not known, include the chassis or kit number of which it is a part, and a sufficient description of the required component for proper identification.

PERSONAL SAFETY

The following precautions are recommended for personal safety :

- DO NOT transmit until all RF connectors are verified secure and any open connectors are properly terminated.
- SHUT OFF and DO NOT operate this equipment near electrical blasting caps or in an explosive atmosphere.
- This equipment should be serviced by a qualified technician only.

SERVICE

This radio is designed for easy servicing. Refer to the schematic diagrams, printed circuit board views, and alignment procedures contained within.

Destnation	Number of CH	RF power output
M2	16	4W

REALIGNMENT

1 Modes

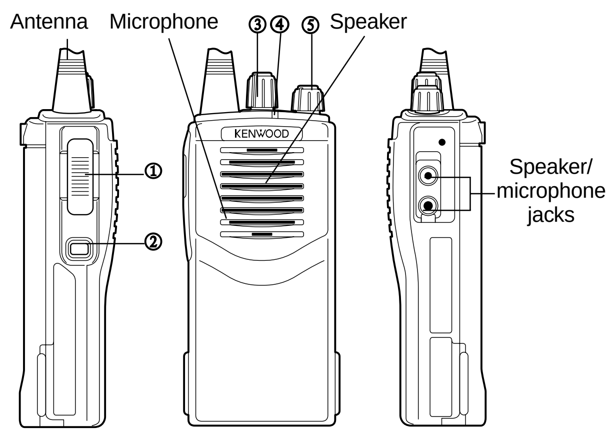
User Mode / PC Mode / Manufacture Mode

MODE	FUNCTION
User Mode	Use this mode for normal operation.
PC Mode	Use this mode, to make various settings by means of the FPU through the RS-232C port.
Manufacture Mode	Use this mode, to realign the various settings through the RS-232C port during manufacture work.

2 How to enter each mode

MODE	PROCEDURE
User Mode	Power ON
PC Mode	Connect to the IBM PC compatible machine and controled by the FPU.

3 Getting acquainted



① **PTT (Push-To-Talk) switch**
Press this switch, then speak into the microphone to call a station. Release the switch to receive.

② **Monitor key**
Press and hold to monitor how busy the current channel is and to monitor signals being received that do not contain the matched QT/DQT code.

③ **Channel selector**
Rotate to select channels 1 ~ 16.

④ **LED indicator**
Lights red while transmitting, green while receiving a signal. Flashes red when the battery voltage is low while transmitting.

⑤ **Power switch/ Volume control**
Turn clockwise to switch the transceiver ON. Turn counterclockwise until a click sounds, to switch the transceiver OFF. Rotate to adjust the volume level.

PC MODE

Preface

The transceiver is programmed by using a personal computer, programming interface (KPG-22) and programming software (KPG-55D).

The programming software can be used with an IBM PC or compatible. Figure 1 shows the setup of an IBM PC for programming.

Connenction procedure

1. Connect the TK-3107 to the personal computer with the interface cable.
2. When data is transmitting from the transceiver the red LED lights.
   When data is received by the transceiver the green LED lights.

Notes:

- The data stored in the personal computer must match the Model Name when it is written into the EEPROM.
- Do not press the [PTT] key during data transmission or reception.

REALIGNMENT

- **KPG-22 description**

  (PC programming interface cable: Option)
  The KPG-22 is required to interface the TK-3107 with the computer. It has a circuit in its D-subconnector (25-pin) case that converts the RS-232C logic level to the TTL level. The KPG-22 connects the side panel jacks of the TK-3107 to the computer's RS-232C serial port.

- **Programming software description**

  The KPG-55D Programming Disk is supplied in 3-1/2" the disk format. The Software on this disk allows a user to program the TK-3107 radios via a Programming interface cable (KPG-22).

- **Programming with IBM PC**

  If data is transferred to the transceiver from an IBM PC with the KPG-55D, the destination data (basic radio information) for each set can be modified. Normally, it is not necessary to modify the destination data because their values are determined automatically when the frequency range (frequency type) is set.
  The values should be modified only if necessary.
  Data can be programmed into the EEPROM in RS-232C format via the SP MIC plug.
  In this mode the PTT line operates as TXD and RXD data lines respectively.

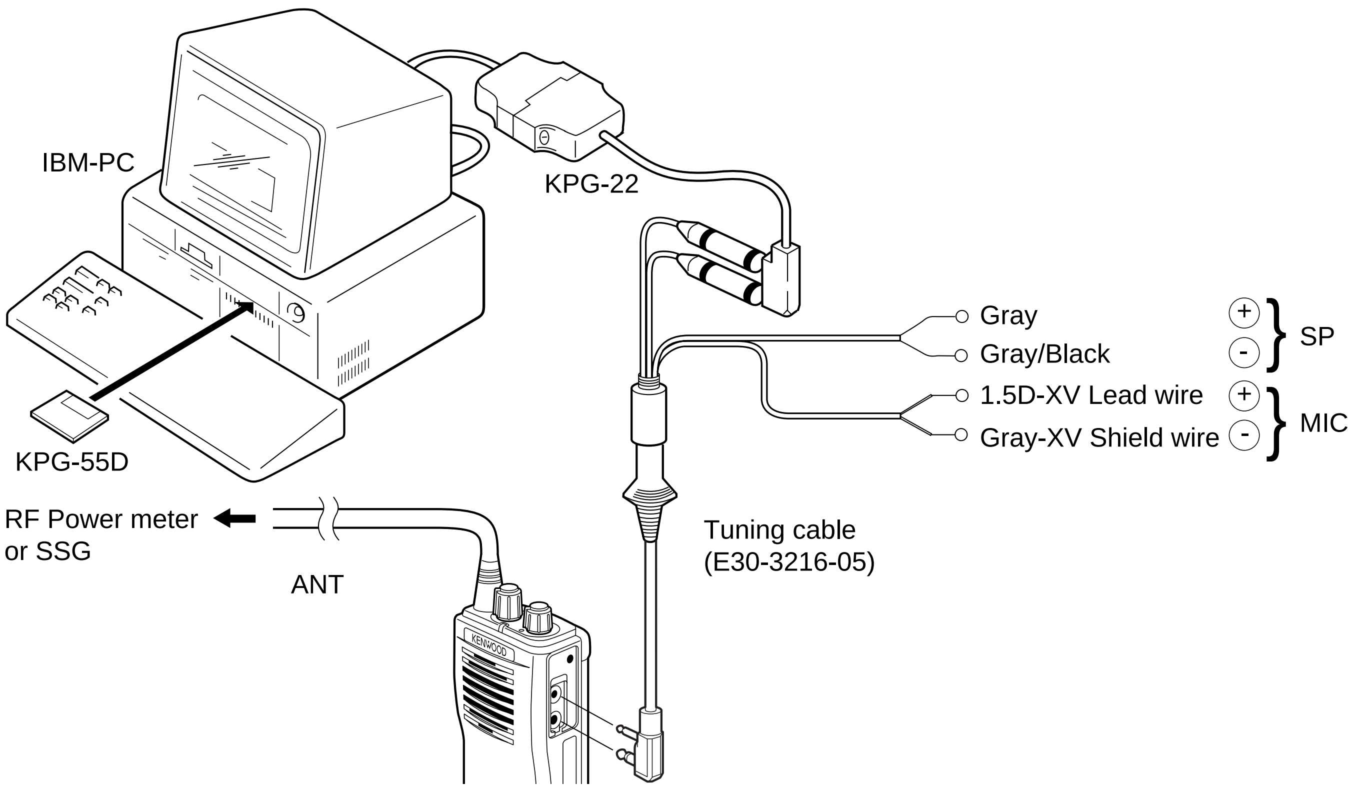
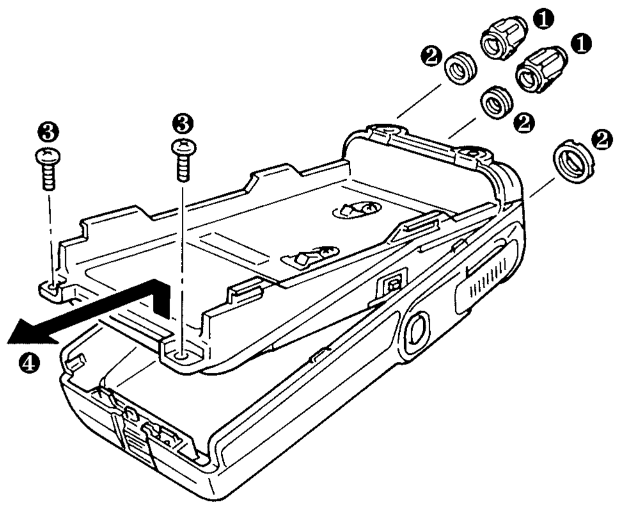


Fig. 1

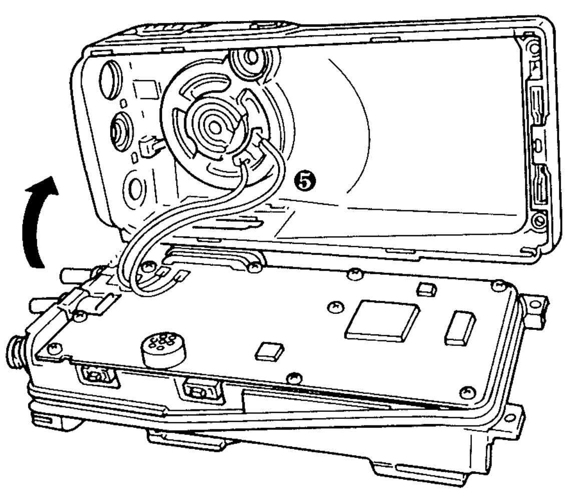
DISASSEMBLY FOR REPAIR

Separating the case assembly from the chassis

1. Remove the two knobs ❶ and three round nuts ❷.
2. Remove the two screws ❸.
3. Expand the right and left sides of the bottom of the case assembly, lift the chassis, and remove it from the case assembly ❹.



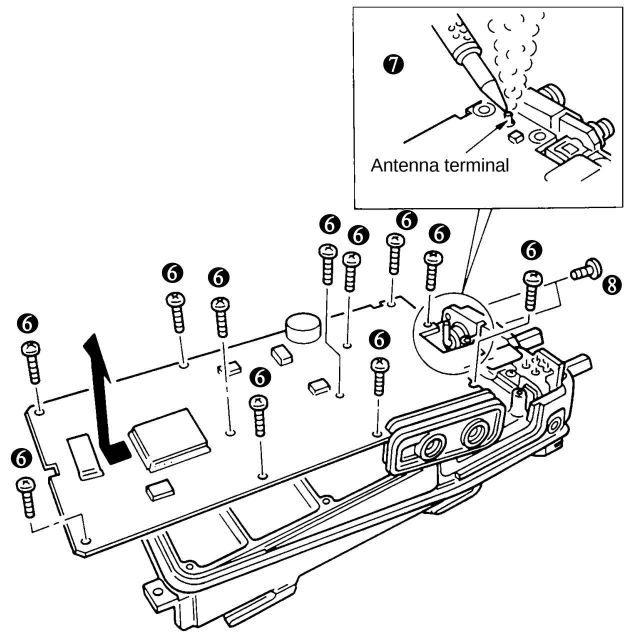
4. Taking care not to cut the speaker lead ❺, open the chassis and case assembly.



Separating the chassis from the unit

1. Remove the eleven screws ❻.
2. Remove the solder from the antenna terminal using a soldering iron then lift the unit off ❼.
3. Remove the two screws ❽ and remove the antenna connector.

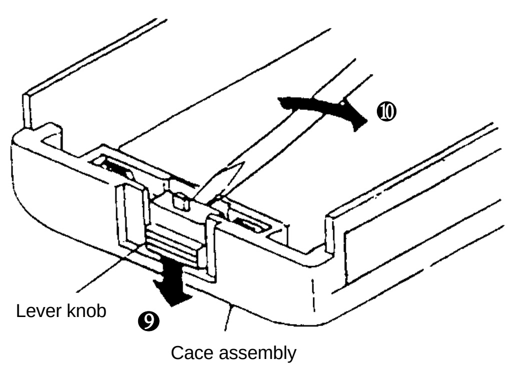
Note : When reassembling the unit in the chassis, be sure to solder the antenna terminal.



Removing the lever

1. Raise the lever on the lower case ❾, insert a small flat screwdriver into the space between the case and lever, open the case carefully ❿ and lift the lever off.

Note : Do not force to separate the case from the lever.



CIRCUIT DESCRIPTION

1. Frequency configuration

The receiver utilizes double conversion. The first IF is 38.85MHz and the second IF is 450kHz. The first local oscillator signal is supplied from the PLL circuit.
The PLL circuit in the transmitter generates the necessary frequencies. Fig. 1 shows the frequencies.

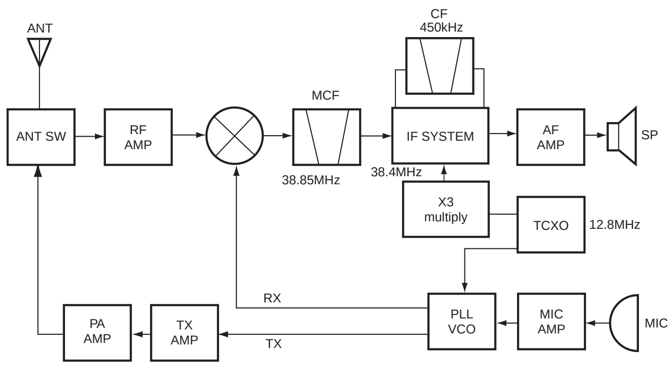


Fig. 1 Frequency configuration

2. Receiver

The receiver is double conversion superheterodyne, designed to operate in the frequency range of 470 to 490MHz. The frequency configuration is shown in Fig. 1.

1) Front - end RF amplifier

An incoming signal from the antenna is applied to an RF amplifier (Q203) after passing through a transmit/receive switch circuit (D102 and D103 are off) and a 3-pole LC filter. After the signal is amplified (Q203), the signal is filtered by a band pass filter (a 3-pole LC filter) to eliminate unwanted signals before it is passed to the first mixer.

The voltage of these diodes are controlled by to track the MPU (IC403) center frequency of the band pass filter. (See Fig. 2)

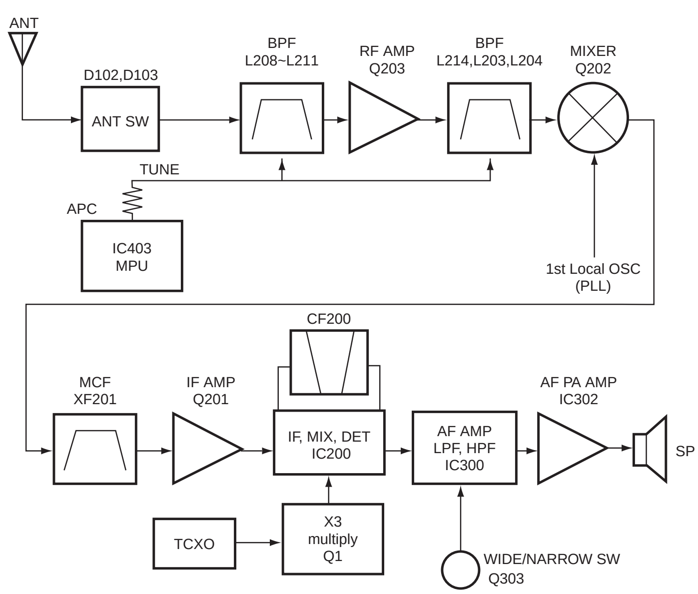


Fig. 2 Receiver section configuration

2) First Mixer

The signal from the RF amplifier is heterodyned with the first local oscillator signal from the PLL frequency synthesizer circuit at the first mixer (Q202) to create a 38.85MHz first intermediate frequency (1st IF) signal. The first IF signal is then fed through two monolithic crystal filters (MCFs : XF201) to further remove spurious signals.

3) IF amplifier

The first IF signal is amplified by Q201, and then enters IC200 (FM processing IC). The signal is heterodyned again with a second local oscillator signal within IC200 to create a 450kHz second IF signal. The second IF signal is then fed through a 450kHz ceramic filter (CF200) to further eliminate unwanted signals before it is amplified and FM detected in IC200.

XF201:L71-0522-05

Item	Rating
Nominal center frequency	38.850MHz
Pass band width	±5.0kHz or more at 3dB
40dB stop band width	±20.0kHz or less
Ripple	1.0dB or less
Insertion loss	4.0dB or less
Guaranteed attenuation	80dB or more at fo -910kHz
Terminal impedance	610Ω/ 3PF

CF200:L72-0958-05

Item	Rating
Nominal center frequency	450kHz
6dB band width	±6.0kHz or more
50dB band width	±12.5kHz or less
Ripple	2.0dB or less at fo ±4kHz
Insertion loss	6.0dB or less
Guaranteed attenuation	35.0dB or more at fo ±100kHz
Terminal impedance	2.0 kΩ

4) AF amplifier

The recovered AF signal obtained from IC200 is amplified by IC300 (1/4), filtered by the IC300 low-pass filter (2/4) and IC300 high-pass filter (3/4) and (4/4), and de-emphasized by R303 and C306. The AF signal is then passed through a WIDE/NARROW switch (Q303). The processed AF signal passes through an AF volume control and is amplified to a sufficient level to drive a loud speaker by an AF power amplifier (IC302).

CIRCUIT DESCRIPTION

5) Squelch

Part of the AF signal from the IC enters the FM IC again, and the noise component is amplified and rectified by a filter and an amplifier to produce a DC voltage corresponding to the noise level.
The DC signal from the FM IC goes to the analog port of the microprocessor (IC403). IC403 determines whether to output sounds from the speaker by checking whether the input voltage is higher or lower than the preset value.
To output sounds from the speaker, IC403 sends a high signal to the MUTE and AFCO lines and turns IC302 on through Q302, Q304, Q305, Q306 and Q307.(See Fig. 3)

6) Receive signaling

QT/DQT

300 Hz and higher audio frequencies of the output signal from IF IC are cut by a low-pass filter (IC301). The resulting signal enters the microprocessor (IC403). IC403 determines whether the QT or DQT matches the preset value, and controls the MUTE and AFCO and the speaker output sounds according to the squelch results.

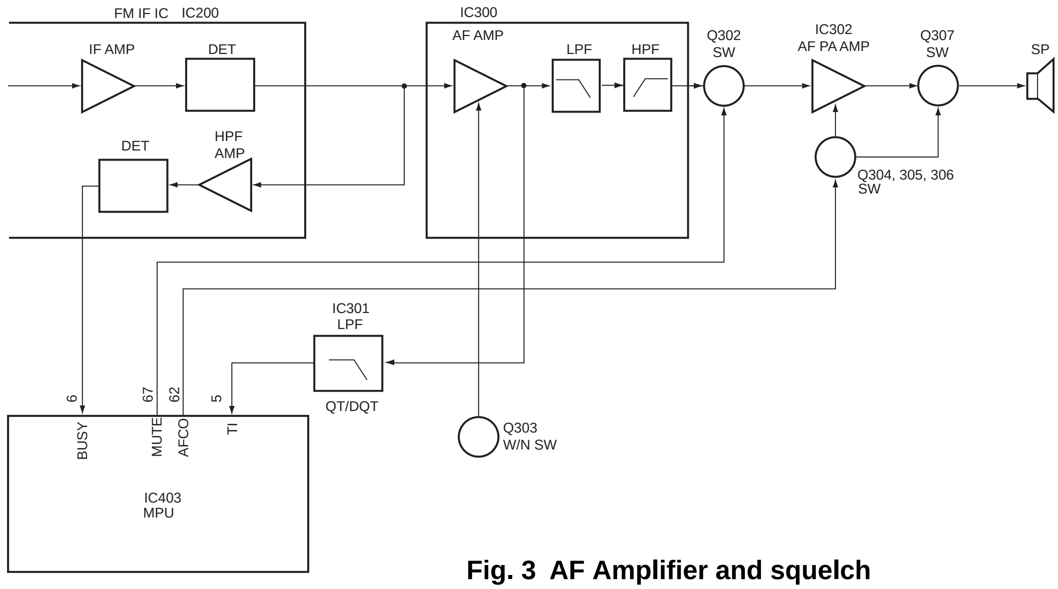


Fig. 3 AF Amplifier and squelch

3. PLL frequency synthesizer

The PLL circuit generates the first local oscillator signal for reception and the RF signal for transmission.

1) PLL

The frequency step of the PLL circuit is 5 or 6.25kHz.
A 12.8MHz reference oscillator signal is divided at IC1 by a fixed counter to produce the 5 or 6.25kHz reference frequency. The voltage controlled oscillator (VCO) output signal is buffer amplified by Q6, then divided in IC1 by a dual-module programmable counter . The divided signal is compared in phase with the 5 or 6.25kHz reference signal in the phase comparator in IC1. The output signal from the phase comparator is filtrered through a low-pass filter and passed to the VCO to control the oscillator frequency. (See Fig.4)

2) VCO

The operating frequency is generated by Q4 in transmit mode and Q3 in receive mode. The oscillator frequency is controlled by applying the VCO control voltage, obtained from the phase comparator, to the varactor diodes (D2 and D4 in transmit mode and D1 and D3 in receive mode). The T/R pin is set high in receive mode causing Q5 and Q7 to turn Q4 off, and turn Q3 on . The T/R pin is set low in transmit mode. The outputs from Q3 and Q4 are amplified by Q6 and sent to the buffer amplifiers.

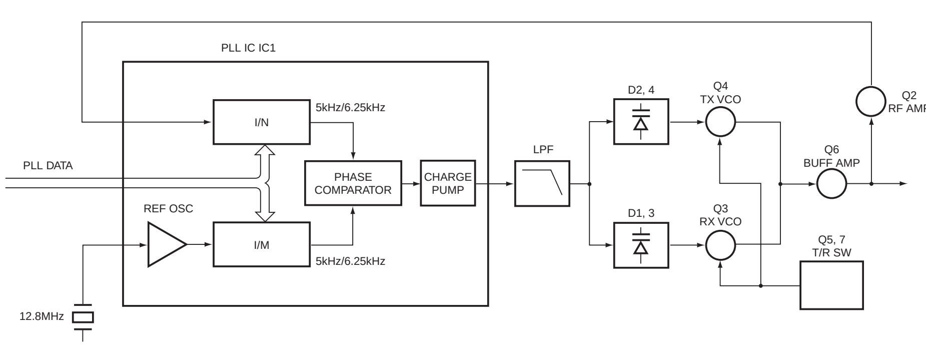


Fig. 4 PLL circuit

CIRCUIT DESCRIPTION

3) UNLOCK DETECTOR

If a pulse signal appears at the LD pin of IC1, an unlock condition occurs, and the DC voltage obtained from D7, R6, and C1 causes the voltage applied to the UL pin of the microprocessor to go low. When the microprocessor detects this condition, the transmitter is disabled, ignoring the push-to-talk switch input signal. (See Fig.5)

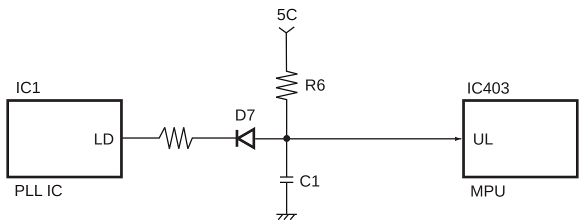


Fig. 5 Unlock detector circuit

4. Transmitter

1) Transmit audio

The modulation signal from the microphone is amplified by IC500 (1/2), passes through a preemphasis circuit, and amplified by the other IC500 (1/2) to perform IDC operation. The signal then passes through a low-pass filter (splatter filter) (Q501 and Q502) and cuts 3kHz and higher frequencies. The resulting signal goes to the VCO through the VCO modulation terminal for direct FM modulation. (See Fig. 6)

2) QT/DQT encoder

A necessary signal for QT/DQT encoding is generated by IC403 and FM-modulated to the PLL reference signal. Since the reference OSC does not modulate the loop characteristic frequency or higher, modulation is performed at the VCO side by adjusting the balance. (See Fig. 6)

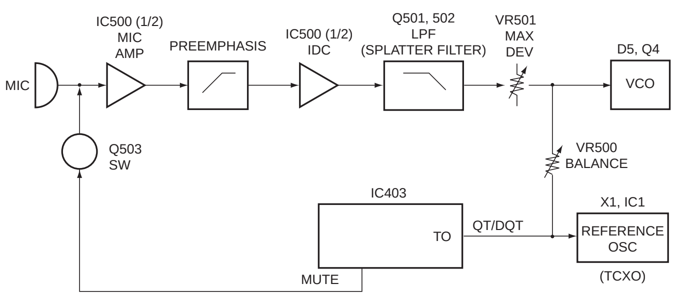


Fig. 6 Transmit audio QT/DQT

3) VCO and RF amplifier

The transmit signal obtained from the VCO buffer amplifier Q100, is amplified by Q101 and Q102. This amplified signal is passed to the power amplifier, Q105 and Q107, which consists of a 2-stage FET amplifier and is capable of producing up to 4W of RF power. (See Fig.7)

4) ANT switch and LPF

The RF amplifier output signal is passed through a low-pass filter network and a transmit/receive switching circuit before it is passed to the antenna terminal. The transmit/receive switching circuit is comprised of D101, D102 and D103. D102 and D103 are turned on (conductive) in transmit mode and off (isolated) in receive mode.

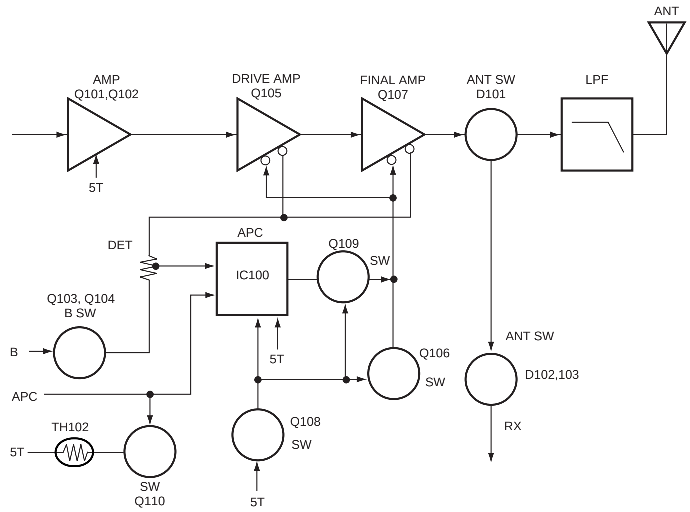


Fig. 7 APC system

5) APC

The automatic power control (APC) circuit stabilizes the transmitter output power at a predetermined level by sensing the drain current of the final amplifier Field Effect Transistor (FET) . The voltage comparator, IC100 (2/2), compares the voltage obtained from the above drain current with a reference voltage which is set using the microprocessor. An APC voltage proportional to the difference between the sensed voltage and the reference voltage appears at the output of IC100 (1/2). This output voltage controls the gate of the FET power amplifier, which keeps the transmitter output power constant. The transmitter output power can be varied by the microprocessor which in turn changes the reference voltage and hence, the output power.

6) Terminal protection circuit

When the thermistor (TH102) reaches about 80˚C, the protection circuit turns on Q110 to protect transmitting final amplifier (Q107) from the over heating.

5. Power supply

A 5V reference power supply [5M] for the control circuit is derived from an internal battery. This reference is used to provide a 5V supply in transmit mode [5T], a 5V supply in receive mode [5R], and a 5V supply common in both modes [5C] based on the control signal sent from the microprocessor.

6. Control system

The IC403 CPU operates at 7.37MHz . This oscillator has a circuit that shifts the frequency according to the EEPROM data.

SEMICONDUCTOR DATA

Microprocessor: M38267M8L241GP (IC403)

Pin No.	I/O	Port Name	Function
1	O	VC1	NC
2	O	VC2	NC
3	I	NC	NC
4	I	TIBI	QT/DQT external circuit center point input
5	I	TI	QT/DQT signal input
6	I	BUSY	Busy input
7	I	BATT	Battery voltage detection
8	I	NC	NC
9	O	VCCN	Frequency regulation output
10	O	APC/TUNE	TX : Auto power control D/A output RX : BPF tuning D/A output
11	I	NC	NC
12	I	NC	NC
13	I	NC	NC
14	I	NC	NC
15	O	BEEP	Beep output
16	O	TO	QT/DQT output
17	I	NC	NC
18	I	PTT	[PTT] key input Connected to RXD
19	O	TXD	RS-232C output Connected to SP/ MIC test(REM)
20	I	RXD	RS-232C input Connected to [PTT] line
21	I	NC	NC
22	I	SELF	Self program L : disable
23	I	MONI	[MONI] key input
24	I	NC	NC
25	I	NC	NC
26	I	NC	NC
27	I	NC	NC
28	I	ENC3	Encode input (channel select)
29	I	ENC2	Encode input (channel select)
30	I	ENC1	Encode input (channel select)
31	I	ENC0	Encode input (channel select)
32	I	INTO	Power detection control
33	I	RST	Reset input
34	I	NC	NC
35	O	NC	NC
36	I	XIN	7.3728MHz oscillator
37	O	XOUT	7.3728MHz oscillator
38	I	VSS	GND
39	O	SHIFT	Beat shift H : shift on
40	O	PABC	Final supply H : on
41	O	WNRC	Audio reference sensitivity L : narrow
42	O	WNTC	MAX Dev. Control Narrow: H
43	I	NC	NC
44	I	NC	NC
45	I	NC	NC
46	I	NC	NC
47	I/O	SDA	EEPROM data line
48	O	SCL	EEPROM clock line
49	I	UL	PLL unlock detection pin L : unlock
50	I	NC	NC
51	I	NC	NC
52	I	NC	NC
53	I	NC	NC
54	I	NC	NC
55	O	DT	Common data output
56	O	CK	Common clock output
57	O	NC	NC
58	O	LE	PLL IC enable H : latches
59	O	NC	NC
60	O	NC	NC
61	O	5MC	Control of power supply (5M) for everything except the microcomputer and EEPROM L : Power supply ON
62	O	AFCO	AF amp power supply H : ON
63	O	RX	TX/RX VCO select H : RX
64	O	GLED	Green LED control H : Lit
65	O	RLED	RED LED control H : Lit
66	O	SAVE	Save control H : Save off
67	O	MUTE	Mute control H : Mic mute L : AF mute
68	O	5RC	Reception power supply control L : on
69	O	5TC	Transmission power supply control H : on
70	O	NC	NC
71	O	NC	NC
72	O	NC	NC
73	O	NC	NC
74	O	NC	NC
75	O	NC	NC
76	O	NC	NC
77	O	NC	NC
78	O	NC	NC
79	O	NC	NC
80	O	NC	NC
81	O	NC	NC
82	O	NC	NC
83	O	NC	NC
84	O	NC	NC
85	O	NC	NC
86	O	NC	NC
87	O	NC	NC
88	O	NC	NC
89	I	VCC	Microcomputer power supply, 5V input
90	I	VREF	A/D conversion reference voltage ; connected to Vcc
91	I	AVSS	A/D converter power supply ; connected to Vss
92	O	NC	NC
93	O	NC	NC
94	O	NC	NC
95	O	NC	NC
96	I	NC	NC
97	I	NC	NC
98	I	NC	NC
99	I	NC	NC
100	I	NC	NC

FET : 2SK2596(Q105)

Absolute Maximum Ratings (Ta=25°C)						
Item	V_{DSS}	V_{GSS}	I_D	Pch*	Tch	Tstg
Rating	17V	±10V	0.4A	3W	150°C	-45~+150°C
				*Tc=25°C		

FET : 2SK2595(Q107)

Absolute Maximum Ratings (Ta=25°C)						
Item	V_{DS}	V_{GSS}	I_D	Pch*	Tch	Tstg
Rating	17V	±10V	1.1A	20W	150°C	-45~+150°C
				*Tc=25°C		

DESCRIPTION OF COMPONENTS

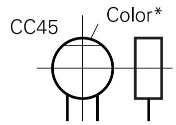
Ref No.	Semiconductor	Description
IC1	IC	PHASE LOCKED LOOP SYSTEM
IC100	IC	AUTOMATIC POWER CONTROL
IC200	IC	IF SYSTEM
IC300	IC	AUDIO AMP ACTIVE FILTER
IC301	IC	ACTIVE FILTER
IC302	IC	AUDIO POWER AMP
IC400	IC	RESET SWITCH
IC401	IC	EEPROM
IC402	IC	VOLTAGE DETECT
IC403	IC	MICRO PROCESSOR
IC404	IC	VOLTAG E REGULATER
IC500	IC	MIC AMP/LIMITER
Q1	TRANSISTOR	TRIPLER
Q2	TRANSISTOR	RF AMP
Q3	FET	VCO RX
Q4	TRANSISTOR	VCO TX
Q5	FET	DC SWITCH
Q6	TRANSISTOR	RF BUFFER AMP
Q7	TRANSISTOR	DC SWITCH
Q8	TRANSISTOR	RIPPLE FILTER
Q100	TRANSISTOR	RF AMP
Q101	TRANSISTOR	TX PRE-DRIVE
Q102	FET	TX DRIVE
Q103	FET	DC SWITCH
Q104	TRANSISTOR	DC SWITCH
Q105	FET	TX DRIVE
Q106	FET	DC SWITCH
Q107	FET	TX FAINAL
Q108,109	TRANSISTOR	DC SWITCH
Q110	TRANSISTOR	TEMPERATURE PROTECTION SWITCH
Q200	TRANSISTOR	DC SWITCH
Q201	TRANSISTOR	IF AMP
Q202	FET	MIXER
Q203	FET	MIXER RF AMP
Q300	TRANSISTOR	ACTIVE FILTER
Q302	FET	AUDIO MUTE SWITCH
Q303-306	TRANSISTOR	DC SWITCH
Q307	FET	AUDIO MUTE SWITCH
Q400-402	TRANSISTOR	DC SWITCH
Q403	TRANSISTOR	BEAT SHIFT SWITCH
Q404	TRANSISTOR	DC SWITCH
Q405	FET	DC SWITCH
Q406-408	TRANSISTOR	DC SWITCH
Q500	FET	DC SWITCH
Q501,502	TRANSISTOR	ACTIVE FILTER
Q503	TRANSISTOR	MIC MUTE/ AGC
Q504	TRANSISTOR	DC SWITCH
D1-4	VARIABLE CAPACITANCE DIODE	FREQ. CONTROL
D5	VARIABLE CAPACITANCE DIODE	TX MODULATION
D6	DIODE	CURRENT STEERING
D7	DIODE	UNLOCKDETECT
D100	DIODE	RF SWITCH
D101-103	DIODE	ANTENNA SWITCH
D200	DIODE	RF SWITCH
D201-205	VARIABLE CAPACITANCE DIODE	BPF TUNING
D300	DIODE	LIMITER
D400	LED	TX
D401	LED	BUSY
D500	DIODE	AGC DETECT
D501	DIODE	MIC MUTE/AGC SWITCH
D502	DIODE	REVERSE PROTECTION

PARTS LIST

CAPACITORS

CC 45 TH 1H 220 J
1 2 3 4 5 6

1 = Type … ceramic, electrolytic, etc.
2 = Shape … round, square, ect.
3 = Temp. coefficient
4 = Voltage rating
5 = Value
6 = Tolerance



• Capacitor value

010 = 1pF
100 = 10pF
101 = 100pF
102 = 1000pF = 0.001µF
103 = 0.01µF

2 2 0 = 22pF
0 = Multiplier
2nd 2 = 2nd number
1st 2 = 1st number

• Temperature coefficient

1st Word	C	L	P	R	S	T	U
Color*	Black	Red	Orange	Yellow	Green	Blue	Violet
ppm/°C	0	–80	–150	–220	–330	–470	–750

2nd Word	G	H	J	K	L
ppm/°C	± 30	± 60	± 120	± 250	± 500

Example : CC45TH = –470 ± 60ppm/°C

• Tolerance (More than 10pF)

Code	C	D	G	J	K	M	X	Z	P	No code
(%)	± 0.25	± 0.5	± 2	± 5	± 10	± 20	+ 40	+ 80	+ 100	More than 10µF – 10 ~ + 50
							– 20	– 20	–0	Less than 4.7µF – 10 ~ + 75

(Less than 10pF)

Code	B	C	D	F	G
(pF)	±0.1	± 0.25	± 0.5	± 1	± 2

• Voltage rating

2nd word / 1st word	A	B	C	D	E	F	G	H	J	K	V
0	1.0	1.25	1.6	2.0	2.5	3.15	4.0	5.0	6.3	8.0	–
1	10	12.5	16	20	25	31.5	40	50	63	80	35
2	100	125	160	200	250	315	400	500	630	800	–
3	1000	1250	1600	2000	2500	3150	4000	5000	6300	8000	–

• Chip capacitors

(EX) C C 7 3 F S L 1 H 0 0 0 J
1 2 3 4 5 6 7

(Chip) (CH, RH, UJ, SL)

(EX) C K 7 3 F F 1 H 0 0 0 Z
1 2 3 4 5 6 7

(Chip) (B, F)

Refer to the table above.

1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Voltage rating
6 = Value
7 = Tolerance

Dimension (Chip capacitors)

Dimension code	L	W	T
Empty	5.6 ± 0.5	5.0 ± 0.5	Less than 2.0
A	4.5 ± 0.5	3.2 ± 0.4	Less than 2.0
B	4.5 ± 0.5	2.0 ± 0.3	Less than 2.0
C	4.5 ± 0.5	1.25 ± 0.2	Less than 1.25
D	3.2 ± 0.4	2.5 ± 0.3	Less than 1.5
E	3.0 ± 0.2	1.6 ± 0.2	Less than 1.25
F	2.0 ± 0.3	1.25 ± 0.2	Less than 1.25
G	1.6 ± 0.2	0.8 ± 0.2	Less than 1.0
H	1.0 ± 0.05	0.5 ± 0.05	0.5 ± 0.05

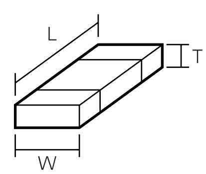
RESISTORS

• Chip resistor (Carbon)

(EX) R K 7 3 E B 2 B 0 0 0 J
1 2 3 4 5 6 7

(Chip) (B,F)

Dimension



• Carbon resistor (Normal type)

(EX) R D 1 4 B B 2 C 0 0 0 J
1 2 3 4 5 6 7

1 = Type
2 = Shape
3 = Dimension
4 = Temp. coefficient
5 = Rating wattage
6 = Value
7 = Tolerance

Dimension (Chip resistor)

Dimension code	L	W	T
E	3.2 ± 0.2	1.6 ± 0.2	1.0
F	2.0 ± 0.3	1.25 ± 0.2	1.0
G	1.6± 0.2	0.8± 0.2	0.5± 0.1
H	1.0 ± 0.05	0.5 ± 0.05	0.35 ± 0.05

Rating wattage

Code	Wattage	Code	Wattage	Code	Wattage
1J	1/16W	2C	1/6W	3A	1W
2A	1/10W	2E	1/4W	3D	2W
2B	1/8W	2H	1/2W		

PARTS LIST

⁎ New Parts. ⚠ indicates safety critical components.
Parts without **Parts No.** are not supplied.
Les articles non mentionnes dans le **Parts No.** ne sont pas fournis.
Teile ohne **Parts No.** werden nicht geliefert.

TK-3107 TX-RX UNIT (X57-6030-11)

Ref. No.	Address	New parts	Parts No.	Description	Destination
TK-3107					
1	1A		A02-2448-13	CABINET ASSY	
2	3B		A82-0034-03	REAR PANEL	
3	-		B09-0351-03	CAP	
4	-	⁎	B62-1164-10	INSTRUCTION MANUAL	
5	-	⁎	B72-1945-04	MODEL NAME PLATE	
6	2B		E04-0413-05	RF COAXIAL RECEPTACLE(SMA)	
7	3B		E23-1183-04	RELAY TERMINAL(BATT-)	
8	1A		G01-0881-04	COIL SPRING(BATT RELEASE)	
-	-		G11-2583-04	SHEET	
9	2B		G11-2588-04	RUBBER SHEET(CHASSIS)	
10	2B		G13-1709-04	CUSHION(VOL)	
-	-		G13-1763-04	CUSHION(CHASSIS-BATT)	
11	3A		G13-1834-04	CUSHION(BATT-)	
12	2B		G53-0791-03	PACKING(SP/MIC PLUG)	
13	2A		G53-0842-13	PACKING(SPEAKER)	
14	2A		G53-0860-04	PACKING(SIDE)	
15	-		H12-3037-02	PACKING FIXTURE	
16	-		H25-0085-04	PROTECTION BAG (100/200/0.07)	
17	-		H25-2012-04	PROTECTION BAG (75/100/0.08)	
18	-	⁎	H52-1560-02	ITEM CARTON CASE	
19	1A		J19-1572-04	HOLDER(BATT RELEASE)	
20	2B		J19-5344-03	HOLDER(VOL/ENC)	
21	-		J21-4493-04	SP/MIC HOLDER	
22	3B		J29-0624-03	BELT HOOK	
-	-		J82-0059-05	FPC	
23	1B		K29-5255-03	KNOB(VOL)	
24	1A		K29-5274-03	BUTTON KNOB(MONI)	
25	1A		K29-5275-03	BUTTON KNOB(PTT)	
26	1B		K29-5278-03	KNOB(ENC)	
27	1A		K29-5337-03	LEVER KNOB(BATT RELEASE)	
A	2B		N09-2319-05	BINDING HEAD SCREW(SMA)	
B	1B		N14-0581-04	CIRCULAR NUT(VOL)	
C	1B		N14-0582-14	CIRCULAR NUT(SMA)	
D	3A		N30-2606-46	PAN HEAD MACHINE SCREW	
E	3B		N79-2035-46	PAN HEAD TAPTITE SCREW	
F	2A,2B		N83-2005-46	PAN HEAD TAPTITE SCREW	
G	-		N99-0396-05	SCREW SET	
-	-		R31-0624-05	VARIABLE RESISTOR	
-	-		S60-0420-05	ROTARY SWITCH	
SP	1A		T07-0369-05	SPEAKER	
ANT			T90-0694-15	WHIP ANTENNA	
TX-RX UNIT (X57-6030-11) • M2					
D400			B30-2156-05	LED(RED)	
D401			B30-2157-05	LED(YELLOW)	
C1			CK73GB1C104K	CHIP C 0.10UF K	
C2,3			CC73GCH1H101J	CHIP C 100PF J	
C4			CK73GB1C104K	CHIP C 0.10UF K	
C5			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C6			CC73GCH1H101J	CHIP C 100PF J	
C7			CK73GB1H471K	CHIP C 470PF K	
C9			CC73GCH1H100D	CHIP C 10PF D	
C10			CC73GCH1H470J	CHIP C 47PF J	
C12			C92-0001-05	CHIP-C 0.1UF 35WV	
C14			CC73GCH1H100D	CHIP C 10PF D	
C15			C92-0004-05	CHIP-TAN 1.0UF 16WV	
C16			CC73GCH1H680J	CHIP C 68PF J	
C17			CK73GB1H331K	CHIP C 330PF K	
C18			C92-0001-05	CHIP-C 0.1UF 35WV	
C19,20			CK73GB1H103K	CHIP C 0.010UF K	
C23			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C24			CK73GB1H103K	CHIP C 0.010UF K	
C25			CK73GB1H471K	CHIP C 470PF K	
C26			CC73GCH1H121J	CHIP C 120PF J	
C27			CK73GB1H471K	CHIP C 470PF K	
C28			CC73GCH1H330J	CHIP C 33PF J	
C29			CC73GCH1H020C	CHIP C 2.0PF C	
C30			CK73GB1H102K	CHIP C 1000PF K	
C31			CC73GCH1H101J	CHIP C 100PF J	
C34			CC73GCH1H330J	CHIP C 33PF J	
C35			CC73GCH1H060B	CHIP C 6.0PF B	
C36			CC73GCH1H080B	CHIP C 8.0PF B	
C37			CC73GCH1H150J	CHIP C 15PF J	
C38			CC73GCH1H020B	CHIP C 2.0PF B	
C39			CC73GCH1H080B	CHIP C 8.0PF B	
C40			CC73GCH1H0R5B	CHIP C 0.5PF B	
C41			CC73GCH1H050B	CHIP C 5.0PF B	
C42			CC73GCH1H130J	CHIP C 13PF J	
C43			CK73GB1H102K	CHIP C 1000PF K	
C44			CC73GCH1H050B	CHIP C 5.0PF B	
C45			CC73GCH1H060B	CHIP C 6.0PF B	
C46			CK73GB1H471K	CHIP C 470PF K	
C47			CC73GCH1H010B	CHIP C 1.0PF B	
C48			CK73GB1H471K	CHIP C 470PF K	
C49			CC73GCH1H0R5B	CHIP C 0.5PF B	
C51			CC73GCH1H680J	CHIP C 68PF J	
C52			CK73GB1H471K	CHIP C 470PF K	
C53			CC73GCH1H060D	CHIP C 6.0PF D	
C54			CC73GCH1H030B	CHIP C 3.0PF B	
C55			CK73GB1H471K	CHIP C 470PF K	
C56			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C100			CC73GCH1H220J	CHIP C 22PF J	
C101-103			CK73GB1H471K	CHIP C 470PF K	
C104			CK73GB1C104K	CHIP C 0.10UF K	
C105			CC73GCH1H060D	CHIP C 6.0PF D	
C106,107			CK73GB1H471K	CHIP C 470PF K	
C108			CC73GCH1H070D	CHIP C 7.0PF D	
C109,110			CK73GB1H471K	CHIP C 470PF K	
C111			CC73GCH1H060D	CHIP C 6.0PF D	
C112			CK73GB1H471K	CHIP C 470PF K	
C113			CK73GB1C104K	CHIP C 0.10UF K	

PARTS LIST

TX-RX UNIT (X57-6030-11)

Ref. No.	Address	New parts	Parts No.	Description	Destination
C114,115			CK73GB1H471K	CHIP C 470PF K	
C116			CK73GB1H102K	CHIP C 1000PF K	
C118			CC73GCH1H270G	CHIP C 27PF G	
C119			CK73GB1H102K	CHIP C 1000PF K	
C120,121			CK73GB1H471K	CHIP C 470PF K	
C123			CK73GB1H102K	CHIP C 1000PF K	
C125			CK73GB1H471K	CHIP C 470PF K	
C126			CK73FB1A105K	CHIP C 1.0UF K	
C127			C92-0565-05	CHIP-TAN 6.8UF 10WV	
C128			CK73GB1H103K	CHIP C 0.010UF K	
C129			CK73GB1H471K	CHIP C 470PF K	
C130			CC73FCH1H220G	CHIP C 22PF G	
C131			CK73GB1C104K	CHIP C 0.10UF K	
C132			CK73GB1H471K	CHIP C 470PF K	
C134			CC73GCH1H101J	CHIP C 100PF J	
C135			CC73GCH1H010C	CHIP C 1.0PF C	
C136			CC73GCH1H060B	CHIP C 6.0PF B	
C138			CC73GCH1H101J	CHIP C 100PF J	
C139			CK73GB1H471K	CHIP C 470PF K	
C141			CK73GB1H471K	CHIP C 470PF K	
C142			CC73GCH1H030B	CHIP C 3.0PF B	
C143			CK73GB1H471K	CHIP C 470PF K	
C144			CC73GCH1H020B	CHIP C 2.0PF B	
C145			CK73GB1H471K	CHIP C 470PF K	
C147			CC73GCH1H010B	CHIP C 1.0PF B	
C149			CC73GCH1H010B	CHIP C 1.0PF B	
C150			CC73GCH1H4R5B	CHIP C 4.5PF B	
C151			CC73GCH1H1R5B	CHIP C 1.5PF B	
C153			CC73GCH1H2R5B	CHIP C 2.5PF B	
C154			CC73GCH1H010B	CHIP C 1.0PF B	
C155			CC73GCH1H1R5B	CHIP C 1.5PF B	
C156			CK73GB1C104K	CHIP C 0.10UF K	
C157			CK73GB1H471K	CHIP C 470PF K	
C165			CK73GB1H471K	CHIP C 470PF K	
C200			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C201			CK73GB1H103K	CHIP C 0.010UF K	
C202			CC73GCH1H100D	CHIP C 10PF D	
C203			CK73GB1H471K	CHIP C 470PF K	
C204			CK73GB1H472K	CHIP C 4700PF K	
C205,206			CC73GCH1H221J	CHIP C 220PF J	
C207			CK73GB1C104K	CHIP C 0.10UF K	
C208			CC73GCH1H270J	CHIP C 27PF J	
C209			CK73GB1C104K	CHIP C 0.10UF K	
C210			CK73GB1H103K	CHIP C 0.010UF K	
C211			CK73GB1C104K	CHIP C 0.10UF K	
C212			CC73GCH1H330J	CHIP C 33PF J	
C213			CK73GB1C104K	CHIP C 0.10UF K	
C214			CK73GB1H103K	CHIP C 0.010UF K	
C215			CC73GCH1H130J	CHIP C 13PF J	
C217			CK73GB1H103K	CHIP C 0.010UF K	
C218			CK73GB1H471K	CHIP C 470PF K	
C219			CC73GCH1H180J	CHIP C 18PF J	
C220,221			CK73GB1H103K	CHIP C 0.010UF K	
C222			CC73GCH1H050B	CHIP C 5.0PF B	
C223			CC73GCH1H020C	CHIP C 2.0PF C	
C224			CK73GB1H471K	CHIP C 470PF K	

Ref. No.	Address	New parts	Parts No.	Description	Destination
C226			CC73GCH1H0R5B	CHIP C 0.5PF B	
C227			CC73GCH1H070B	CHIP C 7.0PF B	
C228			CC73GCH1H080B	CHIP C 8.0PF B	
C229			CK73GB1H471K	CHIP C 470PF K	
C231,232			CK73GB1H471K	CHIP C 470PF K	
C233			CC73GCH1H0R3B	CHIP C 0.3PF B	
C234			CC73GCH1H0R5B	CHIP C 0.5PF B	
C235			CC73GCH1H030B	CHIP C 3.0PF B	
C236			CC73GCH1H2R5B	CHIP C 2.5PF B	
C237			CK73GB1H471K	CHIP C 470PF K	
C238			CC73GCH1H0R5B	CHIP C 0.5PF B	
C239			CC73GCH1H2R5B	CHIP C 2.5PF B	
C252			CC73GCH1H4R5B	CHIP C 4.5PF B	
C253,254			CK73GB1H471K	CHIP C 470PF K	
C255			CC73GCH1H3R5B	CHIP C 3.5PF B	
C256			CK73GB1C104K	CHIP C 0.10UF K	
C257			CK73GB1H471K	CHIP C 470PF K	
C258			CK73GB1C104K	CHIP C 0.10UF K	
C259			CC73GCH1H4R5B	CHIP C 4.5PF B	
C300			CK73GB1H822K	CHIP C 8200PF K	
C301			CK73GB1E183K	CHIP C 0.018UF K	
C302,303			CK73GB1C104K	CHIP C 0.10UF K	
C304			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C305			CK73GB1H103J	CHIP C 0.010UF J	
C306			CK73GB1C473K	CHIP C 0.047UF K	
C307			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C308			CK73GB1H562K	CHIP C 5600PF K	
C309			CK73GB1H103J	CHIP C 0.010UF J	
C311			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C312			CK73GB1H103J	CHIP C 0.010UF J	
C313			CK73FB1A105K	CHIP C 1.0UF K	
C314			CK73GB1H102K	CHIP C 1000PF K	
C316			CK73GB1H103J	CHIP C 0.010UF J	
C318			CK73GB1C333J	CHIP C 0.033UF J	
C319			CK73GB1C473J	CHIP C 0.047UF J	
C320,321			CK73GB1C333J	CHIP C 0.033UF J	
C322			CK73FB1E104K	CHIP C 0.10UF K	
C327			CK73GB1C104K	CHIP C 0.10UF K	
C330			CC73GCH1H101J	CHIP C 100PF J	
C331			CK73FB1C474K	CHIP C 0.47UF K	
C332			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C333			CK73GB1A474K	CHIP C 0.47UF K	
C334			CC73GCH1H221J	CHIP C 220PF J	
C335			CK73GB1C473K	CHIP C 0.047UF K	
C336			CK73GB1H103K	CHIP C 0.010UF K	
C337			C92-0665-05	TANTAL 100UF 6.3WV	
C338			CC73GCH1H560J	CHIP C 56PF J	
C400			CK73GB1C104K	CHIP C 0.10UF K	
C402-404			CK73GB1H471K	CHIP C 470PF K	
C406			CK73GB1H471K	CHIP C 470PF K	
C407			CK73GB1H102K	CHIP C 1000PF K	
C408			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C409			CC73GCH1H030B	CHIP C 3.0PF B	
C410,411			CK73GB1H471K	CHIP C 470PF K	
C412			CC73GCH1H100D	CHIP C 10PF D	
C413			CK73GB1H102K	CHIP C 1000PF K	

PARTS LIST

TX-RX UNIT (X57-6030-11)

Ref. No.	Address	New parts	Parts No.	Description	Destination
C414			CK73GB1H471K	CHIP C 470PF K	
C415			CC73GCH1H100D	CHIP C 10PF D	
C416			CK73GB1H471K	CHIP C 470PF K	
C417			CK73EF1C105Z	CHIP C 1.0UF Z	
C418			CK73GB1H103K	CHIP C 0.010UF K	
C420-422			CK73GB1H103K	CHIP C 0.010UF K	
C423			CK73GB1C104K	CHIP C 0.10UF K	
C424			CK73FB1A105K	CHIP C 1.0UF K	
C425			CK73GB1H103K	CHIP C 0.010UF K	
C427			CK73GB1H471K	CHIP C 470PF K	
C429,430			CK73FB1A105K	CHIP C 1.0UF K	
C500,501			CK73GB1C273K	CHIP C 0.027UF K	
C502			CK73GB1H392K	CHIP C 3900PF K	
C503			CK73GB1C333K	CHIP C 0.033UF K	
C504			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C505			CK73FB1A105K	CHIP C 1.0UF K	
C506			CK73GB1H471K	CHIP C 470PF K	
C507			C92-0587-05	CHIP-TAN 2.2UF 4WV	
C508			CK73GB1H103K	CHIP C 0.010UF K	
C509			CK73GB1H332K	CHIP C 3300PF K	
C510			CC73GCH1E681J	CHIP C 680PF J	
C511			CK73GB1C473K	CHIP C 0.047UF K	
C512			CK73GB1H332K	CHIP C 3300PF K	
C513			CC73GCH1E681J	CHIP C 680PF J	
C514			CK73GB1C473K	CHIP C 0.047UF K	
C515			CK73GB1H103K	CHIP C 0.010UF K	
C516			CC73GCH1H100D	CHIP C 10PF D	
C517			CK73GB1H471K	CHIP C 470PF K	
C518			CK73GB1E223J	CHIP C 0.022UF J	
C519			C92-0507-05	CHIP-TAN 4.7UF 6.3WV	
C520			CK73GB1E223J	CHIP C 0.022UF J	
C521			CK73GB1H102K	CHIP C 1000PF K	
C522			CK73FB1E104K	CHIP C 0.10UF K	
C523			C92-0587-05	CHIP-TAN 2.2UF 4WV	
C524			CK73GB1C273K	CHIP C 0.027UF K	
C525			CK73GB1C104K	CHIP C 0.10UF K	
C526			CK73GB1H471K	CHIP C 470PF K	
C527			C92-0560-05	CHIP-TAN 10UF 6.3WV	
C528			CK73GB1H471K	CHIP C 470PF K	
C529			CK73FB1H471K	CHIP C 470PF K	
C530,531			CC73GCH1H221J	CHIP C 220PF J	
C532			CK73GB1H471K	CHIP C 470PF K	
TC1			C05-0383-05	CERAMIC TRIMMER CAP(6PF)	
TC2			C05-0384-05	CERAMIC TRIMMER CAP(10PF)	
TC201			C05-0383-05	CERAMIC TRIMMER CAP(6PF)	
TC202,203			C05-0369-05	CERAMIC TRIMMER CAP	
			E23-1005-04	RELAY TERMINAL	
CN400			E40-5998-05	PIN ASSY	
J500			E11-0457-05	PHONE JACK	
F500			F53-0130-05	FUSE	
F500			F53-0217-05	FUSE	
34	2B		G53-0862-04	PACKING	
			J19-1571-04	HOLDER	
			J30-1249-04	SPACER	
CF200			L72-0958-05	CERAMIC FILTER	
L1			L92-0140-05	FERRITE CHIP	
L2			L40-1005-85	SMALL FIXED INDUCTOR(10UH)	
L4			L40-4781-86	SMALL FIXED INDUCTOR(0.47UH)	
L5			L40-5681-86	SMALL FIXED INDUCTOR(0.56UH)	
L6			L40-1875-77	SMALL FIXED INDUCTOR(18NH)	
L7			L92-0140-05	FERRITE CHIP	
L8			L40-1085-77	SMALL FIXED INDUCTOR(100NH)	
L9			L40-3391-86	SMALL FIXED INDUCTOR(3.3UH)	
L10			L92-0140-05	FERRITE CHIP	
L11			L40-3391-86	SMALL FIXED INDUCTOR(3.3UH)	
L12			L40-1085-77	SMALL FIXED INDUCTOR(100NH)	
L13,14			L33-0744-05	SMALL FIXED INDUCTOR(23NH)	
L15			L40-1085-77	SMALL FIXED INDUCTOR(100NH)	
L16,17			L40-2285-38	SMALL FIXED INDUCTOR(220NH)	
L19			L92-0140-05	FERRITE CHIP	
L20			L40-3391-86	SMALL FIXED INDUCTOR(3.3UH)	
L21			L40-2275-77	SMALL FIXED INDUCTOR(22NH)	
L100			L40-2275-77	SMALL FIXED INDUCTOR(22NH)	
L101			L40-1875-77	SMALL FIXED INDUCTOR(18NH)	
L102			L40-1575-77	SMALL FIXED INDUCTOR(15NH)	
L103			L92-0140-05	FERRITE CHIP	
L104			L40-1098-76	SMALL FIXED INDUCTOR(1UH)	
L105			L92-0149-05	FERRITE CHIP	
L106			L34-4551-05	AIR-CORE COIL	
L107			L92-0149-05	FERRITE CHIP	
L109			L40-2285-54	SMALL FIXED INDUCTOR(220NH)	
L110			L34-4547-05	AIR-CORE COIL	
L112			L34-4547-05	AIR-CORE COIL	
L113			L34-4547-05	AIR-CORE COIL	
L114			L34-4546-05	AIR-CORE COIL	
L118			L40-1092-81	SMALL FIXED INDUCTOR	
L119			L40-2263-77	SMALL FIXED INDUCTOR(2.2NH)	
L200			L40-3385-85	SMALL FIXED INDUCTOR(0.33UH)	
L201			L40-5685-85	SMALL FIXED INDUCTOR(0.56UH)	
L202			L40-2275-77	SMALL FIXED INDUCTOR(22NH)	
L203,204			L34-4546-05	AIR-CORE COIL	
L206			L40-1875-77	SMALL FIXED INDUCTOR(18NH)	
L207			L40-3375-77	SMALL FIXED INDUCTOR(33NH)	
L208-211			L34-4546-05	AIR-CORE COIL	
L212			L34-4554-05	COIL	
L212			L34-4585-05	COIL	
L214			L34-4546-05	AIR-CORE COIL	
L400			L40-2281-86	SMALL FIXED INDUCTOR(0.22UH)	
L401			L92-0140-05	FERRITE CHIP	
L402,403			L40-2281-86	SMALL FIXED INDUCTOR(0.22UH)	
L500			L92-0140-05	FERRITE CHIP	
L501,502			L92-0149-05	FERRITE CHIP	
X1			L77-1756-05	TCXO(12.8MHZ)	
X400			L77-1761-05	CRYSTAL RESONATOR(7.3728MHZ)	
XF201			L71-0522-05	MCF(38.85MHZ)	
			N78-2640-46	PAN HEAD TAPTITE SCREW	
CP1			R90-0724-05	MULTI-COMP1KX4	
R1,2			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R3			RK73GB1J100J	CHIP R 10 J 1/16W	
R4			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R5			RK73GB1J561J	CHIP R 560 J 1/16W	

TK-3107

PARTS LIST

TX-RX UNIT (X57-6030-11)

Ref. No.	Address	New parts	Parts No.	Description	Destination
R6			RK73GB1J154J	CHIP R 150K J 1/16W	
R7			RK73GB1J561J	CHIP R 560 J 1/16W	
R8			RK73GB1J334J	CHIP R 330K J 1/16W	
R9			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R10			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R11			RK73GB1J473J	CHIP R 47K J 1/16W	
R12			RK73GB1J274J	CHIP R 270K J 1/16W	
R13			RK73GB1J221J	CHIP R 220 J 1/16W	
R14			RK73GB1J101J	CHIP R 100 J 1/16W	
R15			RK73GB1J103J	CHIP R 10K J 1/16W	
R16			RK73GB1J473J	CHIP R 47K J 1/16W	
R18			RK73GB1J104J	CHIP R 100K J 1/16W	
R19			RK73GB1J101J	CHIP R 100 J 1/16W	
R20			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R21			RK73GB1J104J	CHIP R 100K J 1/16W	
R22			RK73GB1J473J	CHIP R 47K J 1/16W	
R23			RK73GB1J682J	CHIP R 6.8K J 1/16W	
R24			RK73GB1J822J	CHIP R 8.2K J 1/16W	
R25			RK73GB1J151J	CHIP R 150 J 1/16W	
R26			RK73GB1J221J	CHIP R 220 J 1/16W	
R27			RK73GB1J471J	CHIP R 470 J 1/16W	
R28			RK73GB1J820J	CHIP R 82 J 1/16W	
R29			R92-1252-05	CHIP R 0 OHM	
R30			RK73GB1J124J	CHIP R 120K J 1/16W	
R31			RK73GB1J101J	CHIP R 100 J 1/16W	
R32			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R33			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R34			RK73GB1J104J	CHIP R 100K J 1/16W	
R100			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R101			RK73GB1J562J	CHIP R 5.6K J 1/16W	
R102			RK73GB1J271J	CHIP R 270 J 1/16W	
R103			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R104			RK73GB1J100J	CHIP R 10 J 1/16W	
R105,106			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R107			RK73GB1J473J	CHIP R 47K J 1/16W	
R108			RK73GB1J331J	CHIP R 330 J 1/16W	
R109			RK73GB1J220J	CHIP R 22 J 1/16W	
R110			RK73GB1J681J	CHIP R 680 J 1/16W	
R111			RK73GB1J220J	CHIP R 22 J 1/16W	
R112			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R113			RK73GB1J331J	CHIP R 330 J 1/16W	
R115			RK73GB1J100J	CHIP R 10 J 1/16W	
R117			RK73GB1J124J	CHIP R 120K J 1/16W	
R118			RK73GB1J473J	CHIP R 47K J 1/16W	
R119			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R120			R92-1252-05	CHIP R 0 OHM	
R121			RK73GB1J470J	CHIP R 47 J 1/16W	
R122			RK73GB1J681J	CHIP R 680 J 1/16W	
R123			R92-0670-05	CHIP R 0 OHM	
R124			RK73GB1J681J	CHIP R 680 J 1/16W	
R125			RK73GB1J473J	CHIP R 47K J 1/16W	
R126			RK73GB1J473J	CHIP R 47K J 1/16W	
R127			R92-0670-05	CHIP R 0 OHM	
R128			RK73GB1J470J	CHIP R 47 J 1/16W	
R130-132			RK73EB2ER39K	CHIP R 0.39 K 1/4W	
R133-138			RK73GH1J154D	CHIP R 150K D 1/16W	

Ref. No.	Address	New parts	Parts No.	Description	Destination
R139			RK73GB1J271J	CHIP R 270 J 1/16W	
R140			RK73GB1J103J	CHIP R 10K J 1/16W	
R141			RK73GB1J473J	CHIP R 47K J 1/16W	
R142			RK73GB1J105J	CHIP R 1.0M J 1/16W	
R143			R92-1252-05	CHIP R 0 OHM	
R144			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R145			RK73GB1J184J	CHIP R 180K J 1/16W	
R146			RK73GB1J104J	CHIP R 100K J 1/16W	
R147			R92-1252-05	CHIP R 0 OHM	
R152			RK73GB1J331J	CHIP R 330 J 1/16W	
R153			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R154			RK73GB1J271J	CHIP R 270 J 1/16W	
R200			RK73GB1J100J	CHIP R 10 J 1/16W	
R201			RK73GB1J392J	CHIP R 3.9K J 1/16W	
R202			RK73GB1J184J	CHIP R 180K J 1/16W	
R203,204			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R205			RK73GB1J153J	CHIP R 15K J 1/16W	
R206			RK73GB1J184J	CHIP R 180K J 1/16W	
R207			RK73GB1J104J	CHIP R 100K J 1/16W	
R208			RK73GB1J684J	CHIP R 680K J 1/16W	
R209			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R210,211			RK73GB1J471J	CHIP R 470 J 1/16W	
R212			RK73GB1J470J	CHIP R 47 J 1/16W	
R213			R92-1252-05	CHIP R 0 OHM	
R214			RK73GB1J103J	CHIP R 10K J 1/16W	
R215			RK73GB1J221J	CHIP R 220 J 1/16W	
R216			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R217			R92-1252-05	CHIP R 0 OHM	
R218			RK73GB1J101J	CHIP R 100 J 1/16W	
R219			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R220			RK73GB1J151J	CHIP R 150 J 1/16W	
R221			RK73GB1J224J	CHIP R 220K J 1/16W	
R222			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R223			RK73GB1J104J	CHIP R 100K J 1/16W	
R224,225			R92-1252-05	CHIP R 0 OHM	
R226			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R227			R92-1252-05	CHIP R 0 OHM	
R228			RK73GB1J104J	CHIP R 100K J 1/16W	
R230,231			RK73GB1J104J	CHIP R 100K J 1/16W	
R300			RK73GH1J913D	CHIP R 91K D 1/16W	
R301,302			RK73GB1J562J	CHIP R 5.6K J 1/16W	
R303			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R304			RK73GB1J105J	CHIP R 1.0M J 1/16W	
R305			RK73GB1J183J	CHIP R 18K J 1/16W	
R306			RK73GB1J124J	CHIP R 120K J 1/16W	
R307			RK73GB1J473J	CHIP R 47K J 1/16W	
R308			RK73GB1J103J	CHIP R 10K J 1/16W	
R309			RK73GB1J474J	CHIP R 470K J 1/16W	
R310,311			R92-0670-05	CHIP R 0 OHM	
R312			RK73GB1J123J	CHIP R 12K J 1/16W	
R313			RK73GB1J104J	CHIP R 100K J 1/16W	
R314			RK73GH1J474D	CHIP R 470K D 1/16W	
R315			RK73GH1J394D	CHIP R 390K D 1/16W	
R316			RK73GB1J274J	CHIP R 270K J 1/16W	
R317			RK73GH1J274D	CHIP R 270K D 1/16W	
R318			RK73GB1J184J	CHIP R 180K J 1/16W	

PARTS LIST

TX-RX UNIT (X57-6030-11)

Ref. No.	Address	New parts	Parts No.	Description	Destination
R320			RK73GB1J473J	CHIP R 47K J 1/16W	
R321			RK73GB1J223J	CHIP R 22K J 1/16W	
R322			RK73GH1J224D	CHIP R 220K D 1/16W	
R323			RK73GB1J104J	CHIP R 100K J 1/16W	
R324			RK73GB1J562J	CHIP R 5.6K J 1/16W	
R325			RK73GB1J104J	CHIP R 100K J 1/16W	
R326			RK73GH1J562D	CHIP R 5.6K D 1/16W	
R327			R92-1252-05	CHIP R 0 OHM	
R328			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R329			R92-1252-05	CHIP R 0 OHM	
R330			RK73GB1J473J	CHIP R 47K J 1/16W	
R331			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R332			RK73GB1J151J	CHIP R 150 J 1/16W	
R333			RK73GB1J474J	CHIP R 470K J 1/16W	
R334			RK73GB1J150J	CHIP R 15 J 1/16W	
R335			RK73GB1J563J	CHIP R 56K J 1/16W	
R336			RK73GB1J333J	CHIP R 33K J 1/16W	
R338			RK73GB1J473J	CHIP R 47K J 1/16W	
R339			RK73GB1J822J	CHIP R 8.2K J 1/16W	
R340			RK73GH1J124D	CHIP R 120K D 1/16W	
R341			RK73GB1J104J	CHIP R 100K J 1/16W	
R342			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R400			RK73GB1J334J	CHIP R 330K J 1/16W	
R401			RK73GB1J104J	CHIP R 100K J 1/16W	
R402			RK73GB1J221J	CHIP R 220 J 1/16W	
R403			RK73GB1J181J	CHIP R 180 J 1/16W	
R404			R92-1252-05	CHIP R 0 OHM	
R405			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R406			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R407			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R408			RK73GB1J104J	CHIP R 100K J 1/16W	
R409			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R410			RK73GB1J822J	CHIP R 8.2K J 1/16W	
R411			RK73GB1J224J	CHIP R 220K J 1/16W	
R412			RK73GB1J100J	CHIP R 10 J 1/16W	
R413			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R414,415			RK73GB1J473J	CHIP R 47K J 1/16W	
R416			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R417			RK73GB1J100J	CHIP R 10 J 1/16W	
R418			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R419			R92-1252-05	CHIP R 0 OHM	
R420			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R421			RK73GB1J473J	CHIP R 47K J 1/16W	
R422			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R423			RK73GB1J473J	CHIP R 47K J 1/16W	
R424,425			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R426			RK73GB1J822J	CHIP R 8.2K J 1/16W	
R427			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R428			RK73GB1J272J	CHIP R 2.7K J 1/16W	
R429			RK73GB1J821J	CHIP R 820 J 1/16W	
R430			RK73GB1J101J	CHIP R 100 J 1/16W	
R431			R92-1252-05	CHIP R 0 OHM	
R432			RK73GB1J103J	CHIP R 10K J 1/16W	
R433,434			RK73GB1J153J	CHIP R 15K J 1/16W	
R435			RK73GB1J103J	CHIP R 10K J 1/16W	
R500,501			RK73GB1J472J	CHIP R 4.7K J 1/16W	

Ref. No.	Address	New parts	Parts No.	Description	Destination
R502			RK73GB1J823J	CHIP R 82K J 1/16W	
R503			RK73GB1J183J	CHIP R 18K J 1/16W	
R504			RK73GB1J333J	CHIP R 33K J 1/16W	
R505			RK73GB1J154J	CHIP R 150K J 1/16W	
R506			RK73GB1J223J	CHIP R 22K J 1/16W	
R507			RK73GB1J473J	CHIP R 47K J 1/16W	
R508			RK73GB1J222J	CHIP R 2.2K J 1/16W	
R509			RK73GB1J124J	CHIP R 120K J 1/16W	
R510			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R511			RK73GB1J103J	CHIP R 10K J 1/16W	
R512			RK73GB1J185J	CHIP R 1.8M J 1/16W	
R513			RK73GB1J333J	CHIP R 33K J 1/16W	
R514,515			RK73GB1J333J	CHIP R 33K J 1/16W	
R516			RK73GB1J103J	CHIP R 10K J 1/16W	
R517			RK73GB1J185J	CHIP R 1.8M J 1/16W	
R518			RK73GB1J682J	CHIP R 6.8K J 1/16W	
R519,520			RK73GB1J333J	CHIP R 33K J 1/16W	
R521			RK73GB1J332J	CHIP R 3.3K J 1/16W	
R522			RK73GB1J182J	CHIP R 1.8K J 1/16W	
R523			RK73GB1J682J	CHIP R 6.8K J 1/16W	
R524			RK73GB1J513J	CHIP R 51K J 1/16W	
R525			RK73GB1J152J	CHIP R 1.5K J 1/16W	
R526,527			RK73GH1J153D	CHIP R 15K D 1/16W	
R528			RK73GB1J754J	CHIP R 750K J 1/16W	
R529			RK73GB1J183J	CHIP R 18K J 1/16W	
R530			RK73GB1J101J	CHIP R 100 J 1/16W	
R531			R92-1252-05	CHIP R 0 OHM	
R532			RK73GB1J821J	CHIP R 820 J 1/16W	
R533			RK73GB1J104J	CHIP R 100K J 1/16W	
R534			RK73GB1J182J	CHIP R 1.8K J 1/16W	
R535			RK73GB1J471J	CHIP R 470 J 1/16W	
R536			RK73GB1J102J	CHIP R 1.0K J 1/16W	
R537,538			RK73GB1J101J	CHIP R 100 J 1/16W	
R539			R92-1252-05	CHIP R 0 OHM	
R540			R92-0670-05	CHIP R 0 OHM	
R541			RK73GB1J472J	CHIP R 4.7K J 1/16W	
R542,543			R92-1252-05	CHIP R 0 OHM	
R548			RK73GB1J332J	CHIP R 3.3K J 1/16W	
VR1			R12-7491-05	TRIMMING POT.(68K)	
VR500			R12-7494-05	TRIMMING POT.(220K)	
VR501			R12-7490-05	TRIMMING POT.(47K)	
S402,403			S70-0414-05	TACT SWITCH	
MIC500			T91-0543-05	MIC ELEMENT	
D1-4			MA2S376	VARIABLE CAPACITANCE DIODE	
D5			1SV214	VARIABLE CAPACITANCE DIODE	
D6,7			MA2S111	DIODE	
D100			HSC277	DIODE	
D101			HVU131	DIODE	
D102,103			HSC277	DIODE	
D200			HSC277	DIODE	
D201-203			HVC355B	VARIABLE CAPACITANCE DIODE	
D300			DA221	DIODE	
D500			1SS372	DIODE	
D501			DAN222	DIODE	

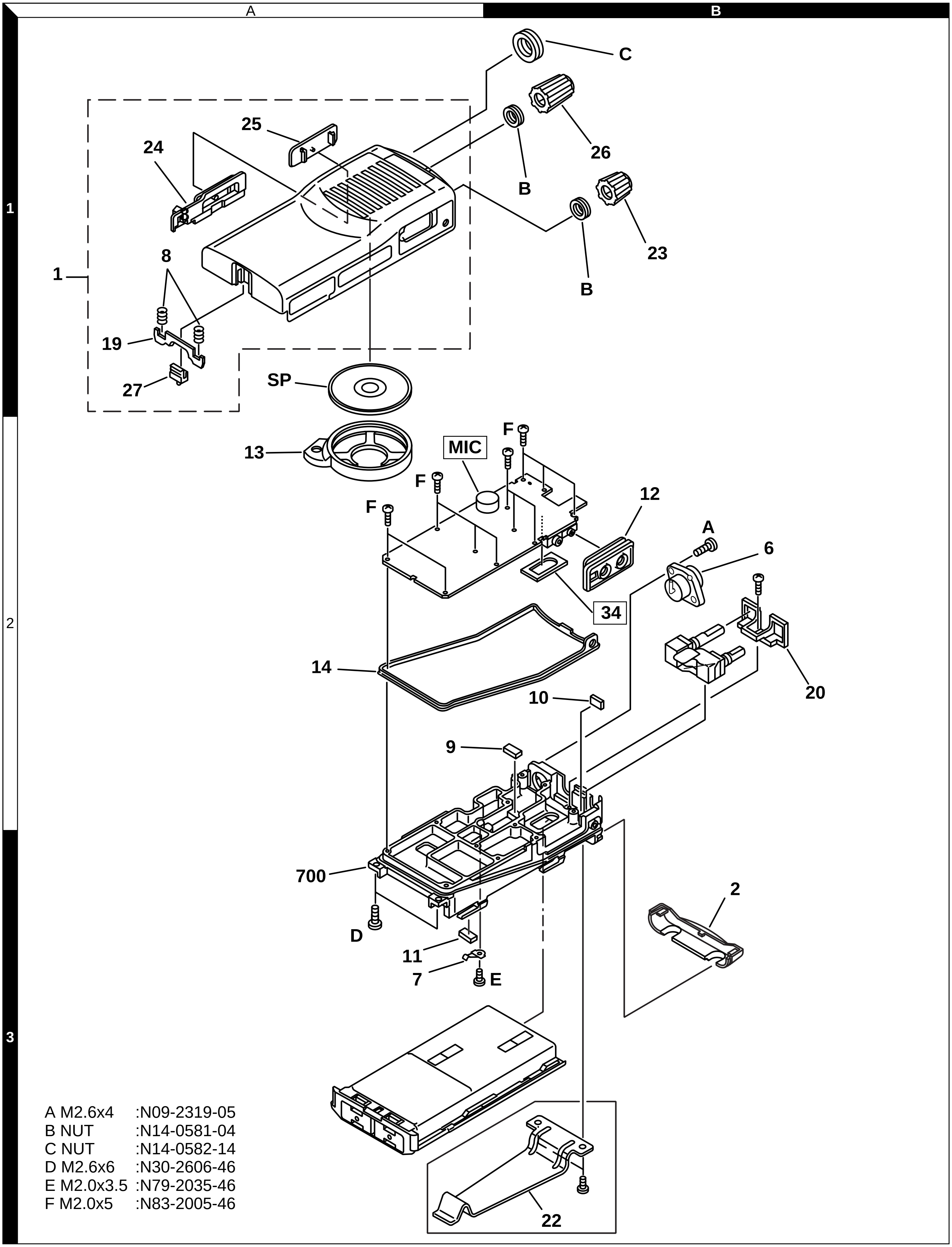
PARTS LIST

TX-RX UNIT (X57-6030-11)

Ref. No.	Address	New parts	Parts No.	Description	Destination
D502			1SR154-400	DIODE	
IC1			MB15A02	IC	
IC100			NJM2904V	IC(APC)	
IC200			TA31136FN	IC(FM IF DETECTOR)	
IC300			NJM2902V	IC	
IC301			NJM2904V	IC(APC)	
IC302			TA7368F	IC(AF POWER AMP)	
IC400			PST9140NR	IC(RESET SW)	
IC401			AT2408N10SI2.5	IC(8kbit SERIAL EEPROM)	
IC402			RN5VL45C	IC(REGULATOR)	
IC403			M38267M8L241GP	IC	
IC404			S-81350HG-KD	IC(VOLTAGE REGULATOR)	
IC500			NJM2100V	IC(AUDIO AMP)	
Q1			2SC4649(N,P)	TRANSISTOR	
Q2			2SC5108(Y)	TRANSISTOR	
Q3			2SK508NV(K52)	FET	
Q4			2SC4228(R44)	TRANSISTOR	
Q5			2SJ243	FET	
Q6			2SC5108(Y)	TRANSISTOR	
Q7			UMC4	TRANSISTOR	
Q8			2SC4617(S)	TRANSISTOR	
Q100,101			2SC5108(Y)	TRANSISTOR	
Q102			2SC4988	TRANSISTOR	
Q103			2SK1824	FET	
Q104			FMMT717	TRANSISTOR	
Q105			2SK2596	FET	
Q106			2SK1824	FET	
Q107			2SK2595	FET	
Q108			DTC114EE	DIGITAL TRANSISTOR	
Q109			DTA144EE	DIGITAL TRANSISTOR	
Q110			DTC114TE	DIGITAL TRANSISTOR	
Q200			DTA114EE	DIGITAL TRANSISTOR	
Q201			2SC4649(N,P)	TRANSISTOR	
Q202,203			3SK228	FET	
Q300			2SC4617(S)	TRANSISTOR	
Q302			2SK1824	FET	
Q303			DTA144EE	DIGITAL TRANSISTOR	
Q304			DTC144EE	DIGITAL TRANSISTOR	
Q305			2SA1362(GR)	TRANSISTOR	
Q306			DTC144EE	DIGITAL TRANSISTOR	
Q307			2SK1588	FET	
Q400,401			DTC114EE	DIGITAL TRANSISTOR	
Q402			DTA114YE	DIGITAL TRANSISTOR	
Q403			DTC144EE	DIGITAL TRANSISTOR	
Q404			UMG3N	TRANSISTOR	
Q405			UPA672T	FET	
Q406			FP210	TRANSISTOR	
Q407			UMG3N	TRANSISTOR	
Q408			DTA123JE	DIGITAL TRANSISTOR	
Q500			2SK1824	FET	
Q501,502			2SC4617(S)	TRANSISTOR	
Q503			2SC4919	TRANSISTOR	
Q504			DTA143ZE	DIGITAL TRANSISTOR	
TH102			157-503-65001	THERMISTOR	
TH500,501			157-302-65801	THERMISTOR	

Ref. No.	Address	New parts	Parts No.	Description	Destination

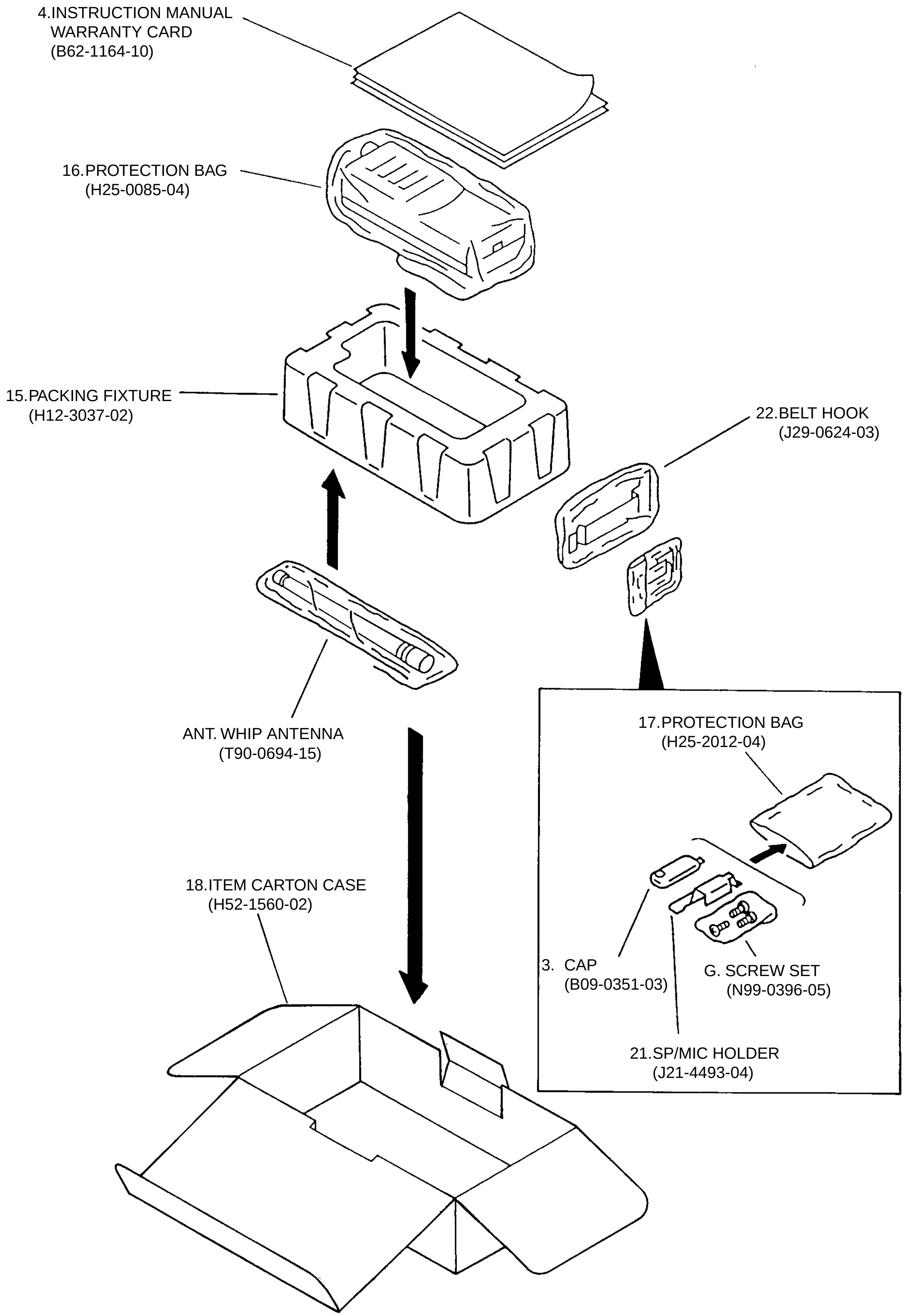
EXPLODED VIEW



A M2.6x4 :N09-2319-05
B NUT :N14-0581-04
C NUT :N14-0582-14
D M2.6x6 :N30-2606-46
E M2.0x3.5 :N79-2035-46
F M2.0x5 :N83-2005-46

Parts with exploded numbers larger than 700 are not supplied.

PACKING


4.INSTRUCTION MANUAL
WARRANTY CARD
(B62-1164-10)
16.PROTECTION BAG
(H25-0085-04)
15.PACKING FIXTURE
(H12-3037-02)
22.BELT HOOK
(J29-0624-03)
ANT. WHIP ANTENNA
(T90-0694-15)
17.PROTECTION BAG
(H25-2012-04)
18.ITEM CARTON CASE
(H52-1560-02)
3. CAP
(B09-0351-03)
G. SCREW SET
(N99-0396-05)
21.SP/MIC HOLDER
(J21-4493-04)

ADJUSTMENT

Required Test Equipment

1. Stabilized Power supply
1. The supply voltage can be changed between 5V and 18V, and the current is 3A or more.
2. The standard voltage is 7.5V.

2. DC Ammeter
1. Class 1 ammeter (17 ranges and other features).
2. The full scale can be set to either 300mA or 3A.
3. A cable of less internal loss must be used.

3. Frequency Counter (f. counter)
1. Frequencies of up to 1GHz or so can be measured.
2. The sensitivity can be changed to 500MHz or below, and measurements are highly stable and accurate (0.2ppm or so).

4. Power Meter
1. Measurable frequency : Up to 500MHz
2. Impedance : 50Ω, unbalanced
3. Measuring range : Full scale of 10W or so
4. A standard cable (5D2W 1m) must be used.

5. RF Voltmeter(RF V.M)
1. Measurable frequency : Up to 500MHz or so.

6. Linear Detector
1. Measurable frequency : Up to 500MHz or so
2. Characteristics are flat, and CN is 60dB or more.

7. Digital Voltmeter
1. Voltage range : FS=18V or so
2. Input resistance : 1MΩ or more

8. Oscilloscope
1. Measuring range : DC to 30MHz
2. Provides highly accurate measurements for 5 to 25MHz.

9. AF Voltmeter (AF V.M)
1. Measurable frequency : 50Hz to 1MHz
2. Maximum sensitivity : 1mV or more

10. Spectrum Analyzer
1. Measuring range : DC to 1GHz or more

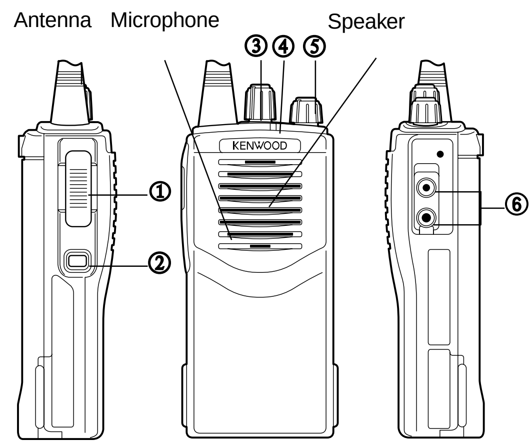
11. Standard Signal Generator (SSG)
1. Maximum frequency : 500MHz or more
2. Output : -133dBm/0.05µV to 7dBm/501mV
3. Output impedance : 50Ω

12. Tracking Generator
1. Center frequency : 50kHz to 500MHz
2. Frequency deviation : ±35MHz
3. Output voltage : 100mV or more

13. Dummy Load
1. 8Ω, 3W or more

14. AF Generator(AG)
1. Frequency range : 100Hz to 100kHz
2. Output : 0.5mV to 1V

15. Distortion Meter
1. Measurable frequency : 30Hz to 100kHz
2. Input level : 50mV to 10Vrms



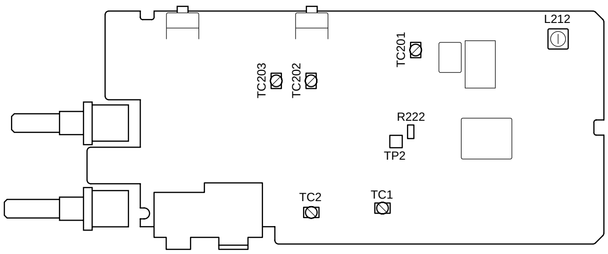
① PTT switch
② Monitor key
③ Channel switch
④ LED indicator
⑤ Power switch
⑥ SP/MIC JAC

- Use a non-conductive rod such as a Ceramic rod for adjustment (especially of trimmers and coils).
  Kenwood order No. A-0910 (0.4X0.9mm)
  Kenwood order No. A-1310 (0.4X1.3mm)
- To protect the SSG,do not send out signals while adjusting the receiving unit.
- The indicated SSG output levels are for maximum output.

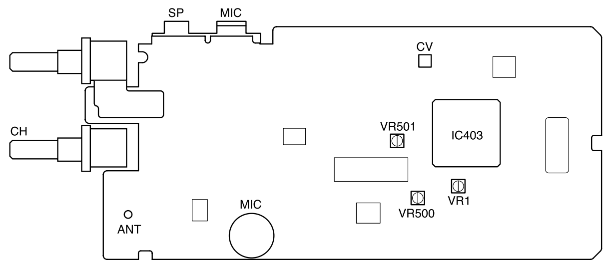
ADJUSTMENT

Adjustment point

Foil Side View



Componennt Side View



TC201:
TC202: } **Band-pass filter waveform adjustment**
TC203:
L212: AF level adjustment
TC1: Transmit lock voltage adjustment
TC2: Receive lock voltage adjustment
TP2: Band-pass filter test point

ANT: Antenna connector
CH: Channel selector
SP: Speaker jack
MIC: Microphone jack
CV: Lock voltage adjustment terminal
VR500: DQT waveform adjustment
VR501: DEV adjustment

Note : To fine tune the frequency when not using a computer, adjust VR1.

ADJUSTMENT FREQUENCY LIST

Destination	M2	
CH	**TX**	**RX**
Center	480.05	
Low	470.05	
Hi	489.95	

Remarks

- Connect the transceiver to the PC
- Send the channel data to the transceiver, then backup the data.
- Program the adjustment frequencies which are in the list, into the transciever.

Note : Remember to reload the channel data you backed up after making the adjustments.

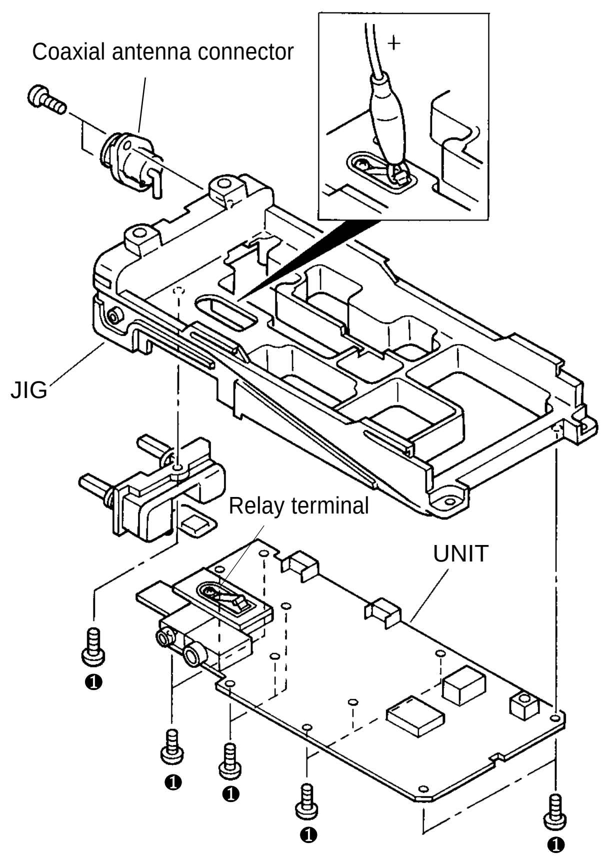
1. Jig (chassis) for adjustment (part number A10-1392-03)

2. Use the jig as follows:

1. Insert the coaxial antenna connector into the jig.
2. Place the unit on the jig and fix it with 12 screws.❶
3. Solder the antenna terminal to the terminal of the unit.

Notes: Supply power from an external power supply.

(Relay terminal : +
jig (chassis) : –)



Use the KPG-55D programming software for adjustment of the next item in PC MODE (see page 2).

Squelch Level, Transmit frequency, DQT Balance, RF Power, QT Deviation, DQT Deviation, Battery Level

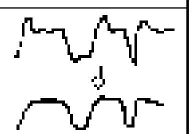
Section common to the transmitter and receiver (VCO)

Item	Condition	Measurement: Test equipment	Measurement: Terminal	Adjustment: Parts	Adjustment: Method	Specifications/ Remarks
1. Setting	1) Power supply voltage Battery terminal:7.5V					
2. VCO lock voltage	1) CH: TX high	Digital voltmeter	CV	TC1	3.7V	±0.1V
	2) CH: RX high			TC2	3.7V	±0.1V
	3) CH: TX low				Check	more than 1.0V
	4) CH: RX low					

Receiver Section

Item	Condition	Measurement: Test equipment	Measurement: Terminal	Adjustment: Parts	Adjustment: Method	Specifications/ Remarks
1. Band-pass filter	1) CH: RX center 2) Tra generator output -40dBm Connect the spectrum analyzer to TP2 terminal.	Tra generator Spectrum analyzer	ANT TP2	TC201 TC202 TC203	Adjust the frequency so that it becomes the spectrum waveform shown in Fig.1.	
2. AF level	1) CH: RX center SSG output: -53dBm (501µV) MOD: 1kHz DEV: ±3.0kHz (Wide) : ±1.5kHz (Narrow)	SSG Oscilloscope AF. V. M Distortion meter	ANT SP	L212	Adjust to the MAX AF level	
3. Sensitivity	1) CH: RX center CH: RX LO CH: RX Hi SSG ouput: -116dBm (0.35µV) MOD: 1kHz DEV: ±3.0kHz (Wide) : ±1.5kHz (Narrow)				Check	SINAD: 12dB or higher
4. Squelch Level (PC MODE)	1) CH: RX center MONI: ON			PC key	Level 9 Adjust to close the squelch.	The squelch must be closed.
	2) Level 9 SSG output: -117dBm					
	3) Level 3 SSG output: -125dBm(0.126µV)				Level 3 Adjust to close the squelch.	The squelch must be closed.

Transmitter section

Item	Condition	Measurement: Test equipment	Measurement: Terminal	Adjustment: Parts	Adjustment: Method	Specifications/ Remarks
1. Transmit frequency (PC MODE)	1) CH: TX center PTT: ON	Frequency counter	ANT	PC key	Adjust to center frequency	within ± 100Hz
2. DQT/QT Balance (PC MODE)	1) CH: TX center	Modulation analyzer or linear detector (LPF: 3kHz) Oscilloscope		VR500	Rectify the waveform to square wave	
3. Power (PC MODE)	1) CH:TX LOW Battery terminal: 7.5V PTT: ON	Power meter Ammeter			Adjust it to 4.1W	±0.1W
4. MAX DEV	1) CH: TX center AG: 1kHz/120mV PTT: ON	Modulation analyzer or linear detector (LPF:15kHz) Oscilloscope AG AF. V. M	ANT MIC	VR501	Adjust it to ± 4.2kHz (Wide) Narrow check (+, - Peak whichever is Maximum)	±100Hz ±1.8kHz~2.2kHz
5. MIC SENS	1) CH: TX center AG: 1kHz/12mV				Check (+, - Peak whichever is Maximum)	±2.2kHz~3.6kHz: (Wide) ±1.1kHz~1.8kHz: (Narrow)
6. QT DEV (PC MODE)	1) CH: TX high QT: 67.0Hz	Modulation analyzer or linear detector (LPF:3kHz) Oscilloscope AG AF. V. M	ANT	PC key	Adjust it to ± 0.75kHz (Wide) Adjust it to ± 0.35kHz (Narrow)	±50Hz ±50Hz
7. DQT DEV (PC MODE)	1) DQT:023N center	Modulation analyzer or linear detector (LPF:3kHz) Oscilloscope		PC key	Adjust it to ± 0.75kHz (Wide) Adjust it to ± 0.35kHz (Narrow)	±50Hz ±50Hz
8. Battery Level (PC MODE)	1) Battery terminal: 5.8V	Digital voltmeter	BATT	PC key	Adjust so that the LED flashes.	The LED must flash.

BPF-Wave

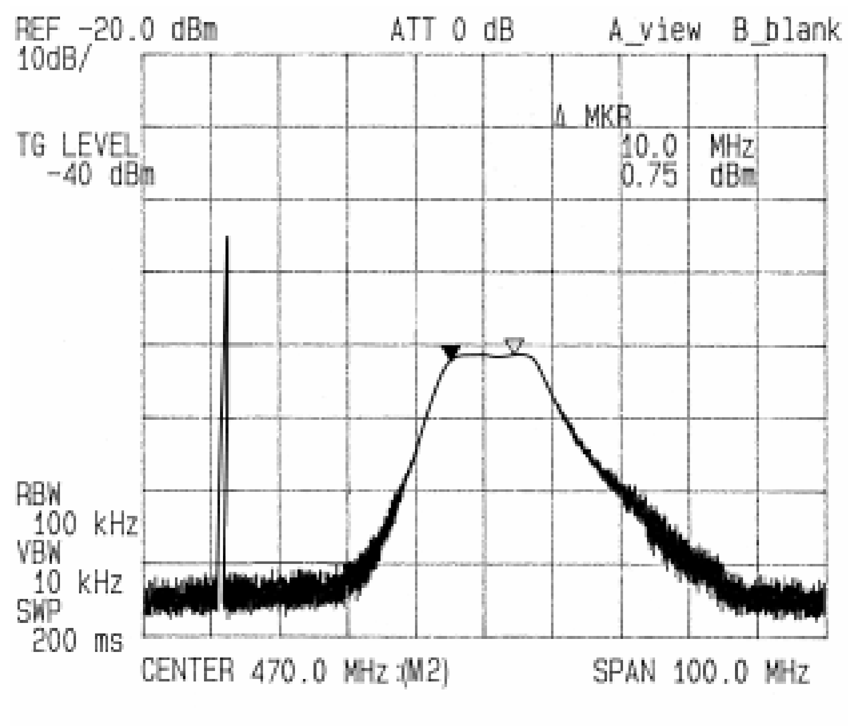
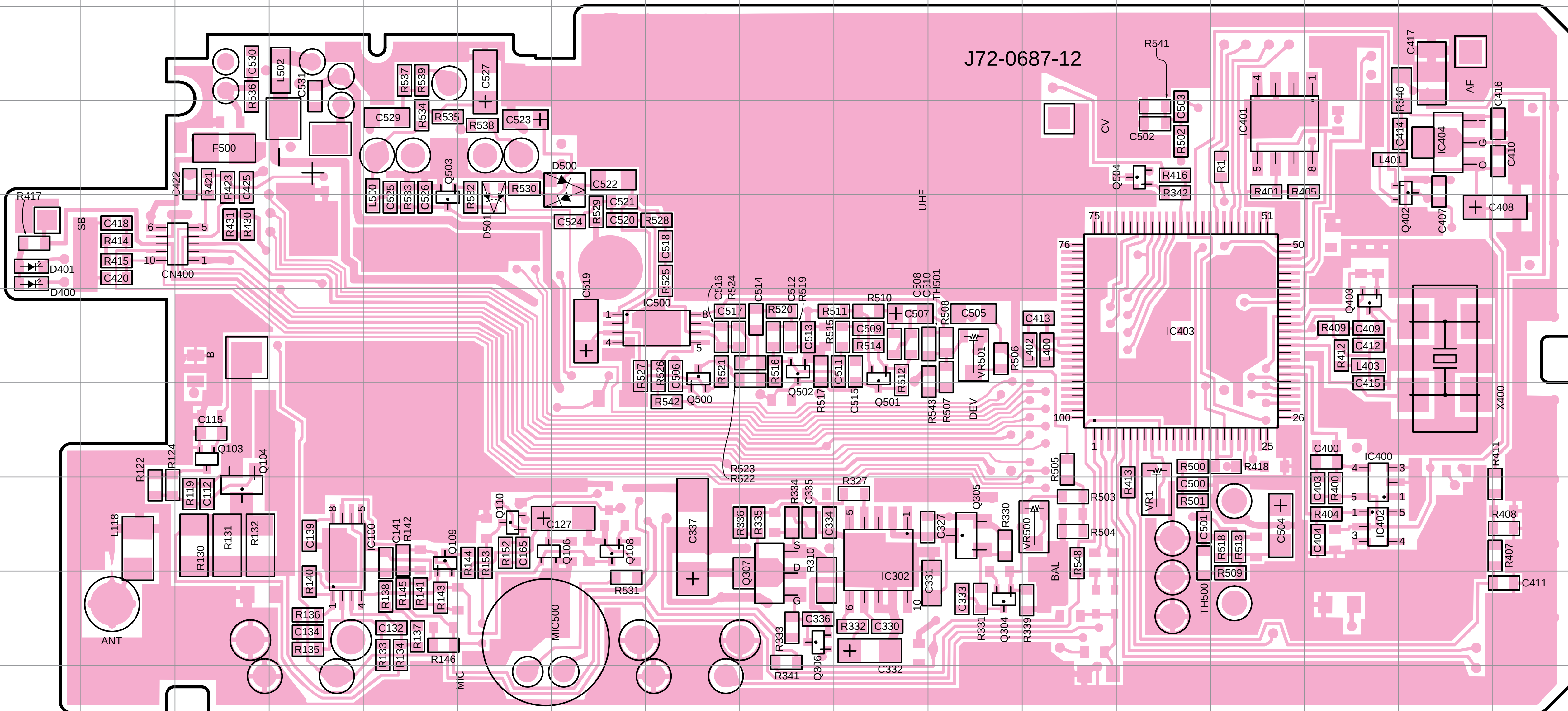


Fig. 1

TK-3107 PC BOARD VIEW

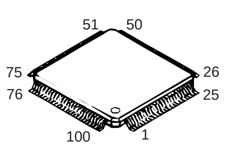
TX-RX UNIT (X57-6030-11) Component side view



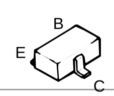
TX-RX UNIT (X57-6030-11)
Component side view

Ref. NO.	Address
IC100	8D
IC302	8J
IC400	8O
IC401	4N
IC402	8O
IC403	6M
IC404	4P
IC500	6G
Q103	7C
Q104	8C
Q106	8F
Q108	8G
Q109	8E
Q110	8F
Q304	9K
Q305	8K
Q306	9I
Q307	8I
Q402	4O
Q403	6O
Q500	6H
Q501	6J
Q502	6I
Q503	5E
Q504	4M
D400	5A
D401	5A
D500	4G
D501	5F

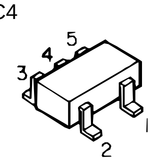
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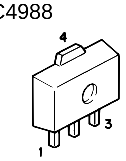
DTA114EE
DTA114YE
DTA123JE
DTA143ZE
DTA144EE
DTC114EE
DTC114TE
DTC144EE
2SA1362
2SC4617
2SC5108
FMMT717
2SC4649
2SC4919



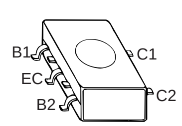
UMC4



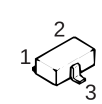
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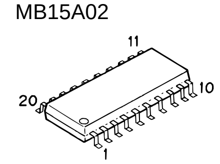
FP210



DA221



MB15A02



Component side

Pattern 1	
Pattern 2	
Pattern 3	
Pattern 4	

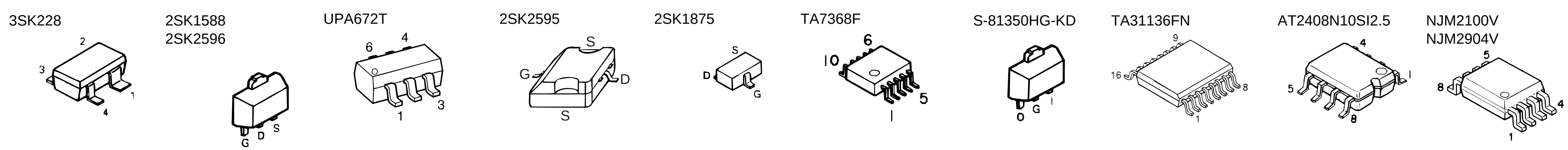
Foil side

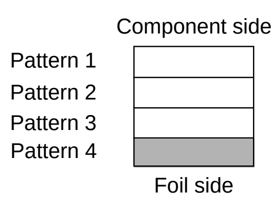
TX-RX UNIT (X57-6030-11) Foil side view

TX-RX UNIT (X57-6030-11)
Foil side view

Ref. NO.	Address
IC1	4G
IC200	8F
IC300	5D
IC301	7D
Q1	6H
Q2	4H
Q3	4L
Q4	3K
Q5	3K
Q6	4K
Q7	4K
Q8	5K
Q100	5J
Q101	6K
Q102	6L
Q105	6M
Q200	9E
Q201	9F
Q202	6J
Q203	9K
Q300	4D
Q302	4C
Q303	5D
Q400	5S
Q401	5S
Q404	5O
Q405	5N
Q406	5P
Q407	6O
Q408	5Q
D1	4L
D2	4J
D3	3L
D4	4I
D5	3J
D6	5K
D7	3F
D100	6J
D101	8Q
D102	8P
D103	8O
D200	6J
D201	8K
D202	8L
D203	9J
D300	9D
D502	5R



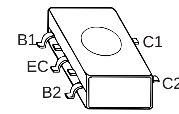




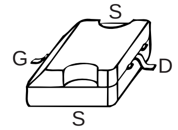
TK-3107 PC BOARD VIEW

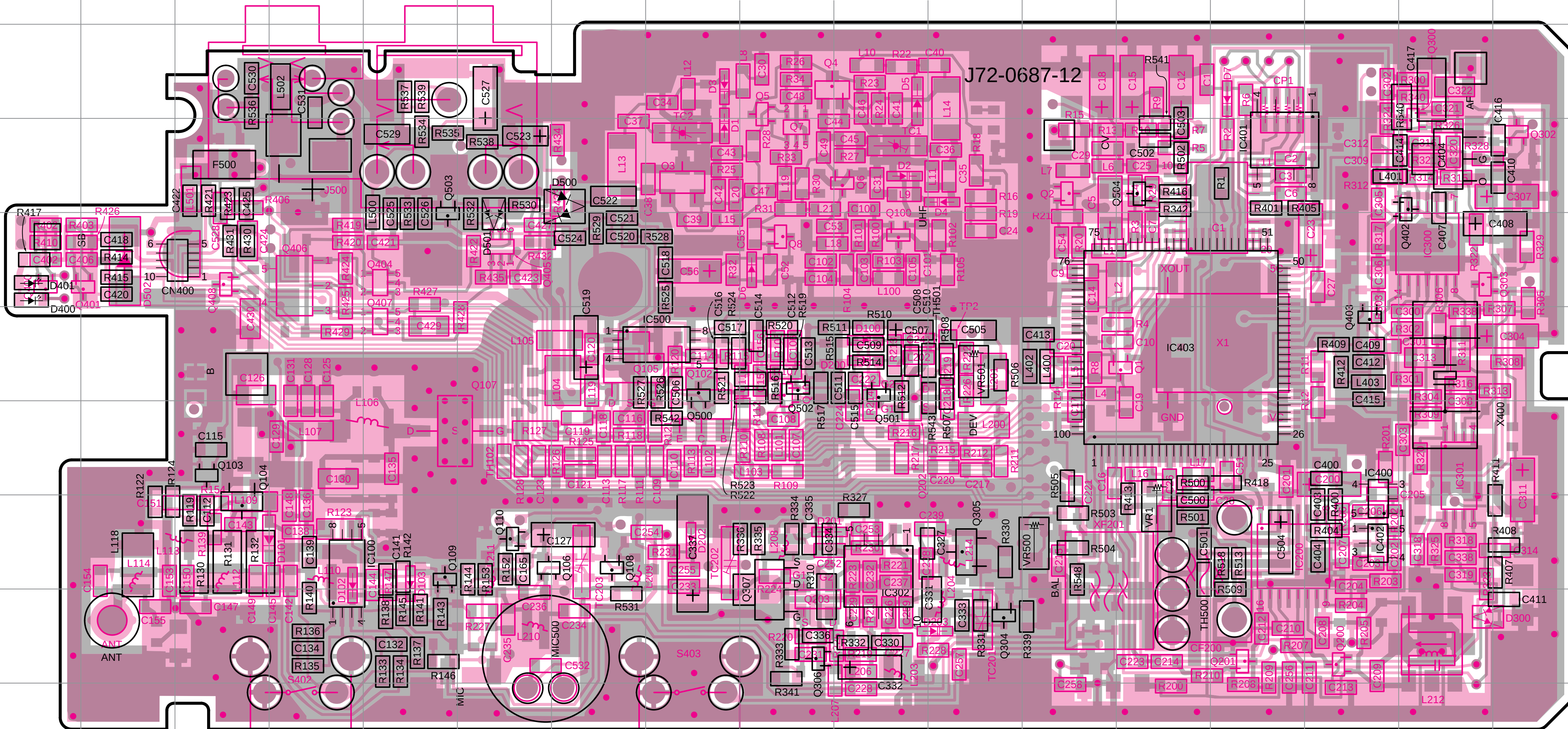
TX-RX UNIT (X57-6030-11) Component side view + Foil side view

FP210

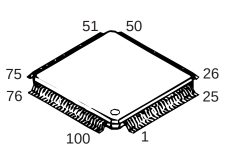


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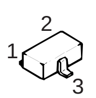




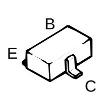
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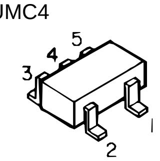
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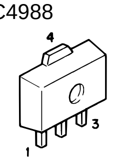
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DTA114YE
DTA123JE
DTA143ZE
DTA144EE
DTC114EE
DTC114TE
DTC144EE
2SA1362
2SC4617
2SC5108
FMMT717
2SC4649
2SC4919



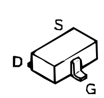
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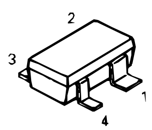
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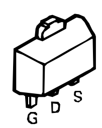
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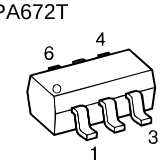
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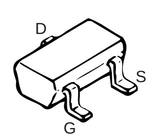
2SK1588
2SK2596



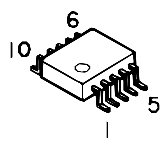
UPA672T



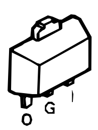
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2SK1824



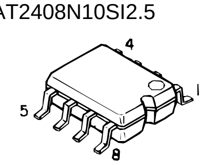
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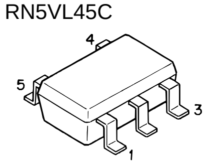
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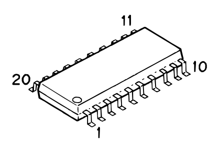
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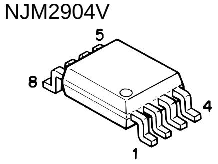
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RN5VL45C



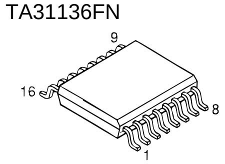
MB15A02



NJM2100V
NJM2904V



TA31136FN



● Connect 1 and 4

Component side

Pattern 1
Pattern 2
Pattern 3
Pattern 4

Foil side

Ref. NO.	Address
D6	5I
D7	3N
D100	6J
D101	8C
D102	8D
D103	8E
D200	6J
D201	8I
D202	8H
D203	9J
D300	9P
D400	5A
D401	5A
D500	4G
D501	5F
D502	5B

TX-RX UNIT (X57-6030-11)
Component side view +
Foil side view

Ref. NO.	Address
IC1	4M
IC100	8D
IC200	8N
IC300	5P
IC301	7P
IC302	8J
IC400	8O
IC401	4N
IC402	8O
IC403	6M
IC404	4P
IC500	6G
Q1	6L
Q2	4L
Q3	4H
Q4	3I
Q5	3I
Q6	4I
Q7	4I
Q8	5I
Q100	5J
Q101	6I
Q102	6H
Q103	7C
Q104	8C
Q105	6G
Q106	8F
Q107	7E
Q108	8G
Q109	8E
Q110	8F
Q200	9O
Q201	9N
Q202	6J
Q203	9I
Q300	4P
Q302	4Q
Q303	5P
Q304	9K
Q305	8K
Q306	9I
Q307	8I
Q400	5A
Q401	5A
Q402	4O
Q403	6O
Q404	5E
Q405	5F
Q406	5D
Q407	6E
Q408	5C
Q500	6H
Q501	6J
Q502	6I
Q503	5E
Q504	4M
D1	4L
D2	4J
D3	3H
D4	4K
D5	3J


SCHEMATIC DIAGRAM TK-3107

TX-RX UNIT (X57-6030-11)

IC1	:MB15A02
IC100	:NJM2904V
IC200	:TA31136FN
IC300	:NJM2902V
IC301	:NJM2904V
IC302	:TA7368F
IC400	:PST9140NR
IC401	:AT2408N10SI2.5
IC402	:RN5VL45C
IC403	:M38267M8L241GP
IC404	:S-81350HG-KD
IC500	:NJM2100V

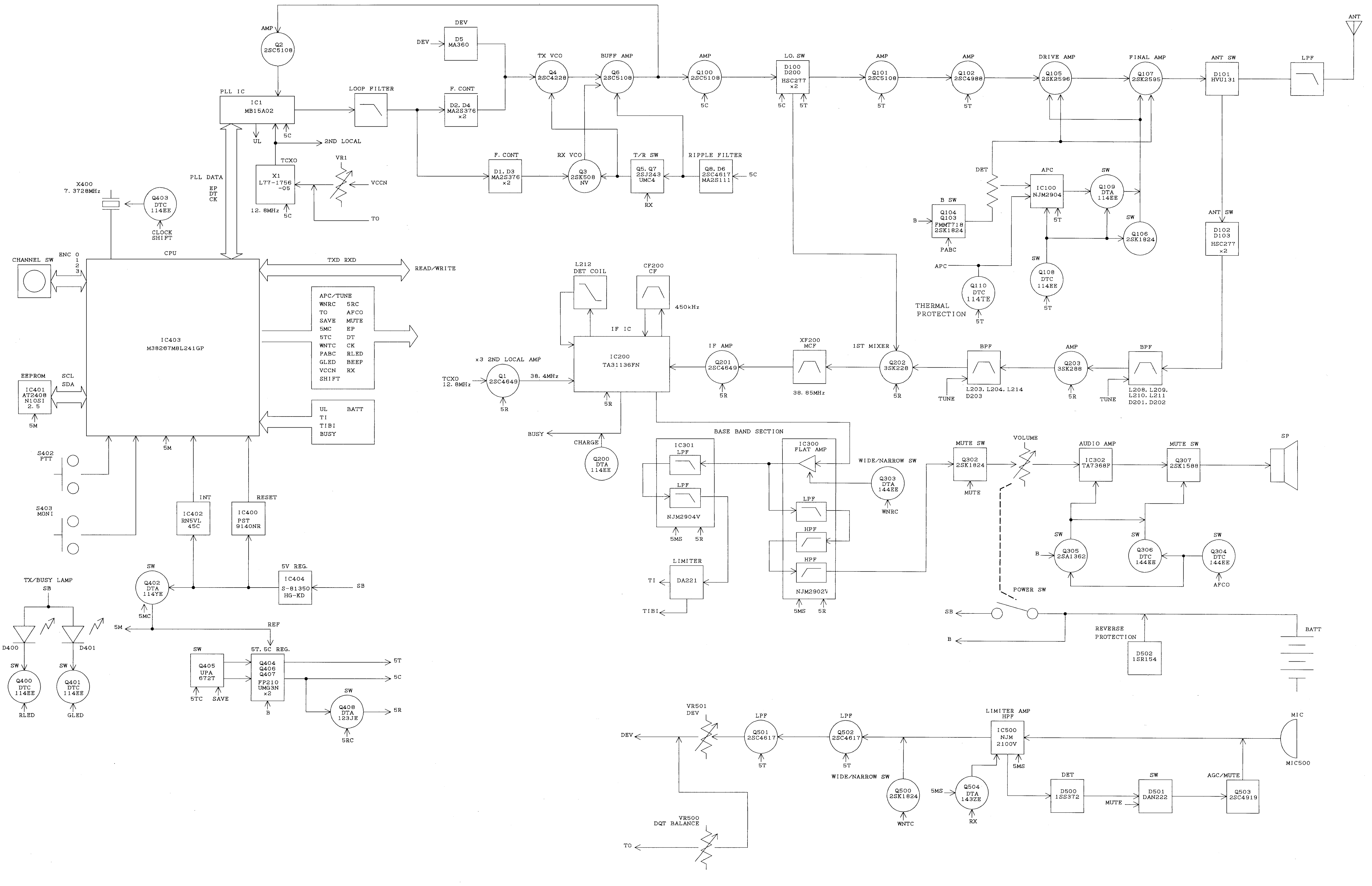
Q1, 201	:2SC4649(N, P)
Q2, 6	:2SC5108(Y)
Q3	:2SK508NV(K52)
Q4	:2SC4228(R44)
Q5	:2SJ243
Q6, 100, 101	:2SC5108(Y)
Q7	:UMC4
Q8, 300, 501, 502	:2SC4617(S)
Q102	:2SC4988
Q103, 106, 302, 500	:2SK1824
Q104	:FMMT717
Q105	:2SK2596
Q107	:2SK2595
Q108, 400, 401	:DTC114EE
Q109, 303	:DTA144EE
Q110	:DTC114TE
Q200	:DTA114EE
Q202, 203	:3SK228
Q304, 306, 403	:DTC144EE
Q305	:2SA1362(GR)
Q307	:2SK1588
Q402	:DTA114YE
Q404, 407	:UMG3N
Q405	:UPA672T
Q406	:FP210
Q408	:DTA123JE
Q503	:2SC4919
Q504	:DTA143ZE

D1-4	:MA2S376
D5	:1SV214
D6, 7	:MA2S111
D100	:HSC277
D101	:HVU131
D102, 103, 200	:HSC277
D201-203	:HVC355B
D300	:DA221
D400	:B30-2156-05
D401	:B30-2157-05
D500	:1SS372
D501	:DAN222
D502	:1SR154-400

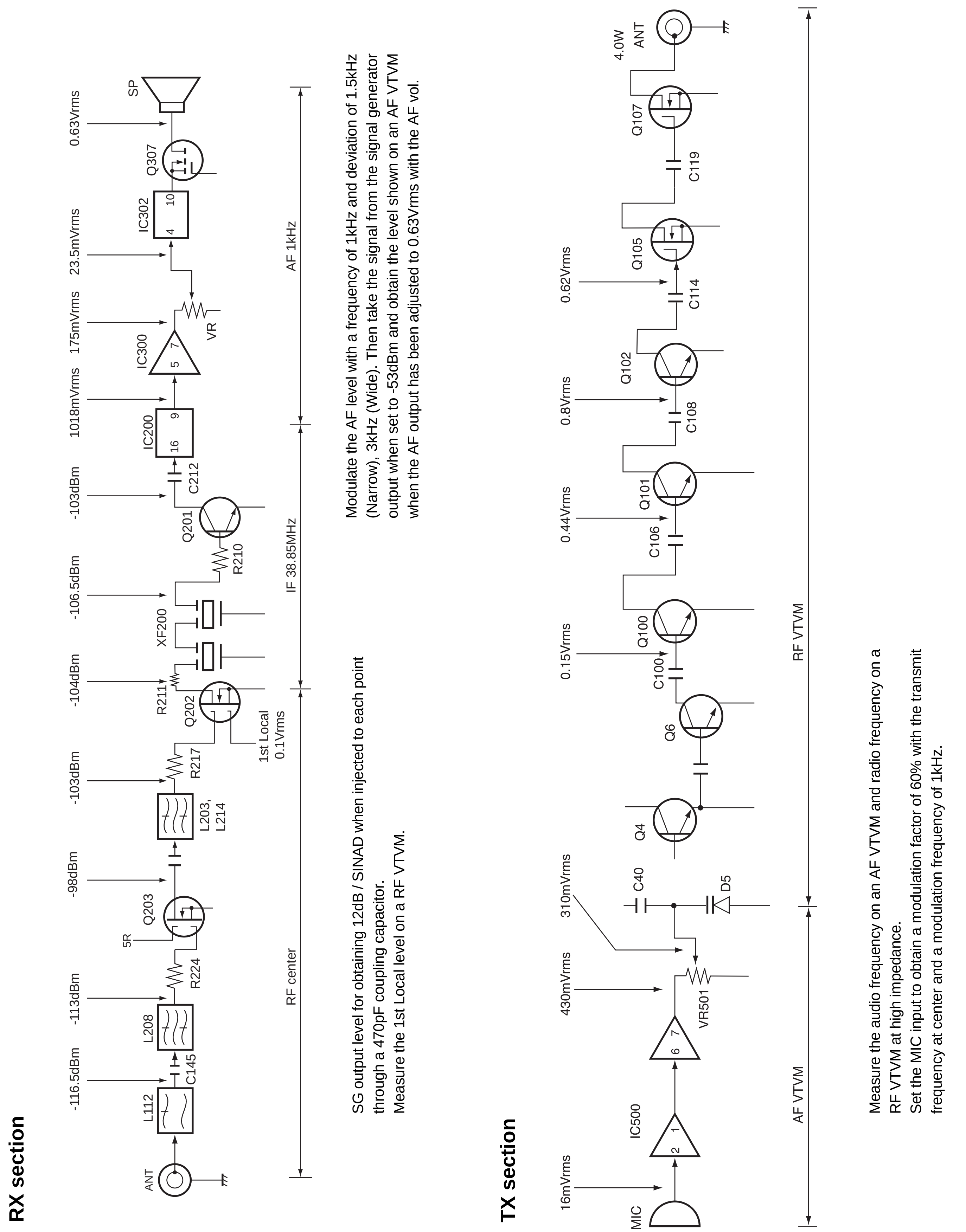


Note : Component marked with a dot (●) are parts of pattern1.

BLOCK DIAGRAM

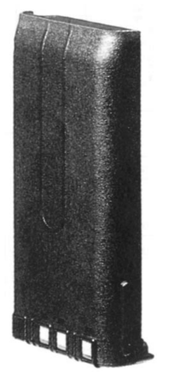


LEVEL DIAGRAM

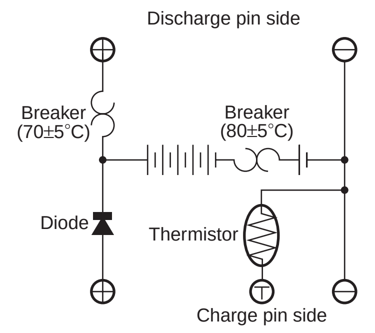


KNB-15A (Ni-Cd Battery)

KNB-15A



CIRCUITDIAGRAM



SPECIFICATIONS

Voltage	: 7.2V (1.2V x 6)
Charging current	: 1100mAh
Dimensions	: 60.8W x 110.8H x 20.3D (mm) (projections included)

Charger and charging time:
KSC-15 (normal charger), approximately 8 hours

Weight	: 210g

MEMO

SPECIFICATIONS

GENERAL

Frequency Range	470-490 MHz
RF power output	4W
Number of channels	16CH
Operating Voltage	7.5 VDC ± 20 %
Temperature Range	-30 °C to + 60 °C (-22 °F to + 140 °F)
Dimensions and Weight	
with KNB-15A (7.2V 1100mAh battery)	58 (2-5/16) W X 125.5 (4-15/16) H X 35 (1-3/8) D mm (inches) 380g (0.83lbs)

KENWOOD CORPORATION
14-6, Dogenzaka 1-chome, Shibuya-ku, Tokyo 150-8501, Japan

KENWOOD SERVICE CORPORATION
P.O. BOX 22745, 2201 East Dominguez Street, Long Beach, CA 90801-5745, U.S.A.

KENWOOD ELECTRONICS CANADA INC.
6070 Kestrel Road, Mississauga, Ontario, Canada L5T 1S8

KENWOOD ELECTRONICS DEUTSCHLAND GMBH
Rembrücker Str. 15, 63150 Heusenstamm, Germany

KENWOOD ELECTRONICS BELGIUM N.V.
Mechelsesteenweg 418 B-1930 Zaventem, Belgium

KENWOOD ELECTRONICS FRANCE S.A.
13, Boulevard Ney, 75018 Paris, France

KENWOOD ELECTRONICS U.K. LIMITED
KENWOOD House, Dwight Road, Watford, Herts., WD1 8EB United Kingdom

KENWOOD ELECTRONICS EUROPE B.V.
Amsterdamseweg 37, 1422 AC Uithoorn, The Netherlands

KENWOOD ELECTRONICS ITALIA S.p.A.
Via G. Sirtori, 7/9 20129 Milano, Italy

KENWOOD IBERICA S.A.
Bolivia, 239-08020 Barcelona, Spain

KENWOOD ELECTRONICS AUSTRALIA PTY. LTD.
(A.C.N. 001 499 074)
16 Giffnock Avenue, Centrecourt Estate, North Ryde, N.S.W. 2113, Australia

KENWOOD ELECTRONICS (HONG KONG) LTD.
Unit 3712-3724, Level 37, Tower one Metroplaza, 223 Hing Fong Road, Kwai Fong, N.T., Hong Kong

KENWOOD ELECTRONICS TECHNOLOGIES(S) PTE LTD.
Sales Marketing Division
1 Ang Mo Kio Street 63, Singapore 569110